About Nordic Swan Ecolabelled

Hand dishwashing detergents

Version 5.5

Background to ecolabelling

7 February 2018

Nordic Ecolabelling

Nordic Swan Ecolabelled hand dishwashing detergent – Background to ecolabelling

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Appendices

1 Summary

Nordic Ecolabelling has established that the most significant parameters for hand dishwashing detergent are:

- Overdosing of the product
- Constituent substances with regard to ecotoxic characteristics and biodegradability
- Health effects, such as allergies
- Packaging
- Performance

Several changes have been made in this version of the criteria. One of the significant changes is that the critical dilution volume (CDV) is calculated using a fixed dosage of 0.6 gram/litre of in-use solution for products that have a recommended dosage of ≤0.6 gram/litre water. The CDV of other products is calculated at the recommended dosage. This amendment has been made to reflect better how such products are actually used today.

The performance test has been updated for clarity and to improve reproducibility. The appendix describing the test is now clearer regarding Nordic Ecolabelling's demands and how this shall be tested and measured. The performance test is important in ensuring that the ecolabelled product works well in real-life situations.

The most significant changes since version 4:

- Calculations using a fixed dosage for products that have a recommended dosage of ≤0.60g/l.
- Tightened CDV limit.
- Environmentally hazardous substances are included in a weighted formula that limits the use of substances the more hazardous they are.
- Max. 100 ppm of each sensitizing fragrance substance.
- Ban on alkylphenol derivatives (APD), substances of very high concern, endocrine disruptors and potential endocrine disruptors, very persistent and very bioaccumulable substances (vPVB) and persistent bioaccumulable and toxic substance (PBT).
- New requirement on quantities of preservatives using a Challenge test.
- Tightened reuse factor for packaging. The producer must demonstrate that packaging is reused.

A summary of the changes from version 4 to version 5 is that the requirements on CDV and environmentally hazardous substances have been tightened and the introduction of a fixed dosage better reflects real-life usage patterns. The requirement on sensitising fragrance substances limits which fragrances are permitted and quantities used.

2 Basic facts about the criteria

Products eligible for labelling

Liquid hand dishwashing detergents for the retail market and for professional use can be Nordic Swan Ecolabelled. The primary function of the product is washing up by hand.
Products that are intended for disinfection or to prevent the growth of micro-organisms (e.g. bacteria) are not included in the product group.
Products are considered professional if more than 80% of sales are to the professional market.

The product group includes hand dishwashing detergent for both professional and consumer use.

Products with disinfecting properties and products that are designed to limit the growth of microorganisms (such as bacteria) are excluded from the criteria. These were excluded already in version 2. Such products were excluded since the position on these from health and environmental authorities was very clear[1]. One objection was that the products are unnecessary and that the marketing promoted their unnecessary use. Further, the authorities identified a risk that consumers may place excessive trust in these products at the expense of more important ways of maintaining good hygiene and moreover that there may be a risk of bacterial resistance.

Following the review period, the definition of professional products was clarified. A professional product is now defined as a product for which more than 80% of sales are to the professional market. This primarily effects requirement 6. A clear delineation between professional and consumer products makes it easier for applicants and Nordic Ecolabelling to ascertain the applicable requirements. Regarding hand dishwashing detergents, requirement 6 regarding fragrances differentiates professional and consumer products. Further, the performance test requirements stipulate that professional products are tested against other professional products and consumer products against other consumer products.

During the drafting of version 2, Nordic Ecolabelling established that antibacterial agents are not particularly common in hand dishwashing detergents. Nonetheless, the requirement was retained in version 3. The requirement is also retained in this version as a precautionary measure.

During this revision, it has been discussed whether ready-to-use (RTU) hand dishwashing detergent should be included in the criteria. The market share of these products is presently small and thus the potential limited. Inquiries among manufacturers showed that only very few have such products. RTU products increase the volume of water that is transported. This must be weighed up by environmental benefits if the criteria are to be opened up to such products. One environmental benefit could be a reduction in the use of chemicals by avoiding the risk of overdosing. It should however be added that the use of this type of product differs slightly from that of standard hand dishwashing detergents (Lilleborg, 2011).

[1] "Undgå rengøringsprodukter og kosmetiske produkter med bakteriedræbende stoffer" (Avoid cleaning products and cosmetics containing antibacterial substances, press release (www.mst.dk/nyheder) from the National Board of Health (Denmark), SSI, the Danish Consumer Agency and the Danish Environmental Protection Agency, 25 October 2000.

These criteria exclude RTU products. The requirement on a maximum dosage of 1 gram/litre means that the criteria are directed at concentrated products. Also, the existing performance test is difficult for RTUs to pass, which as been pointed out by manufacturers. Questions directed to the manufacturers of RTU products have given limited response meaning that our data on which to base possible special requirements of RTUs is limited. If there is an interest to ecolabel RTU products, more data is required to evaluate such products. They are not included in this version.

Justification for Nordic Ecolabelling

An environmental framework is part of criteria development that is formalised to facilitate the evaluation of environmental benefit. To achieve environmental benefits, each individual requirement must have relevance with regard to Nordic Ecolabelling's environmental objectives[2]. There must also exist a demonstrated potential to differentiate environmentally more suitable products (there has to be a difference and it must "pay" to set the requirement). It must also be possible to control the environmental aspect in question through the environmental requirement.

These three aspects should be considered together and the approach is called Relevance-Potential-Steerability (RPS). Maximum environmental benefit is achieved by selecting the requirements that have the greatest relevance, potential and controllability with regard to the product's lifecycle.

Relevance

Relevance is assessed on the basis of the environmental problems caused by the product group and their magnitude.

Volume

Large volumes of hand dishwashing detergent are used today. In Denmark, Finland, Sweden and Norway an average of 1.6-1.8 litres of hand dishwashing detergent are use per person and year, i.e. roughly 40-45,000 000 tonne/year[3]. Hand dishwashing detergent is thus still a relevant product group for Nordic Ecolabelling. The large volumes by themselves make it relevant review the environmental effects of hand dishwashing detergents.

Appendix 1 contains a MECO analysis, i.e. a summary of effects of the material, energy, chemicals and other (e.g. waste, transport) associated with a hand dishwashing detergent. This is a simplified LCA since no comprehensive LCA has been performed for hand dishwashing detergents. The MECO analysis was performed during the revision of the criteria. The following parameters are identified as significant regarding hand dishwashing detergent.

Dosage and performance

The overdosing of hand dishwashing detergent is a significant problem since consumers do not dose according to the instructions but squeeze an arbitrary amount into the sink or directly onto the washing-up. Both these methods result in overdosing. Overdosing leads

[2] http://www.nordic-ecolabel.org/about/the-mission/

[3] Estimate based on statistics from the Swedish Chemicals Inspectorate (2008), Nielsen report (2008) and population data from www.norden.org.

to the increased resource consumption and the increased emission of chemicals post use. Performance is linked to dosage. Poor performance increases the risk of overdosing.

Ecotoxicity and biodegradability

Hand dishwashing detergent is used in homes and facilities that are connected to a district sewage system and ones that are not (camping sites, holiday homes, etc.). The use of hand dishwashing detergent is greater in locations lacking a connection to the district sewage system than for example other cleaning agents. It is therefore essential to avoid emissions to the environment of substances at are persistent, highly ecotoxic and/or bioaccumulating.

Particular requirements are set of surfactants, which are the largest single ingredient and functionally the most important in the product. Preservatives can be problematic and accordingly specific requirements are also set of these.

Ecotoxicity and biodegradability are the most important parameters for the constituent ingredients/chemicals since hand dishwashing detergents are flushed away with the waste water and enter the environment. Products that contain toxic ingredients are more harmful to the environment.

Health

Health is a very important parameter in regard to hand dishwashing detergents. The user comes into direct skin contact with the dish washing detergent and is thus subject to risks such as allergies.

Use phase: Energy and water consumption

The energy consumed to heat the washing water is a significant environmental aspect. The washing water is heated to just above body temperature.

An LCA performed by Unilever compares dishwasher detergent and hand dishwashing detergent and is illustrated in Figure 1. This establishes that the volume of water and energy consumption in the use phase (washing-up) are important parameters.

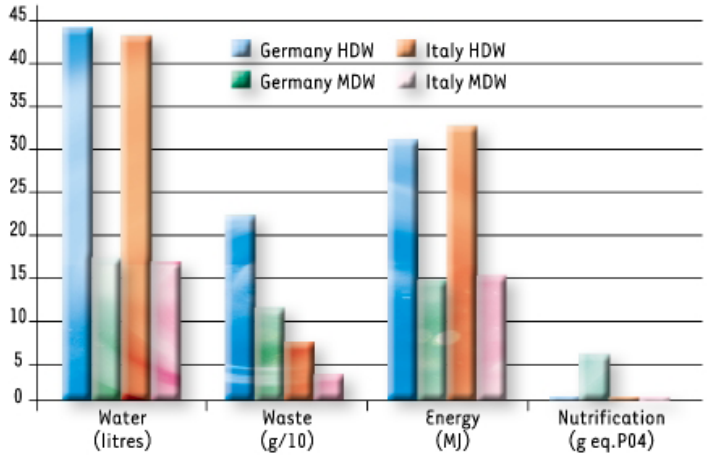

Figure 2.1. Lifecycle analysis of hand dishwashing detergent (HDW) in comparison to machine dishwashing detergent (MDW) performed by Unilever (Unilever, 2001). The figure shows that water is a significant aspect of hand dishwashing.

Figure 1 indicates that hand dishwashing consumes considerably more water than washing-up using a dishwasher. A comparison by Vattenfall (Vattenfall, 2011) shows that washing-up under warm running water uses approximately 100 litres of water while a dishwasher uses 10-20 litres. Figure 2 provides a comparison between washing-up under running water, washing-up in a bowl and a dishwasher. The cost of washing-up under running water is more than double that of washing-up in a bowl. The figure indicates that the major cost is electricity for heating water and that the cost of washing under running warm water is far greater than for the other methods.

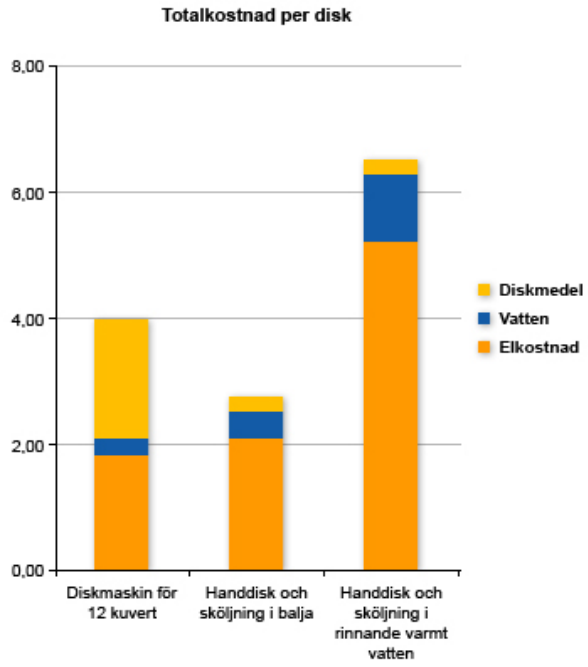

Figure 2.2. Comparison of the quantity of water and electricity consumed by a dishwasher and hand dishwashing (Vattenfall, 2011).

An investigation by Karlstads elnät (Karlstads elnät, 2011) shows similar figures, i.e. that washing-up with running warm water consumes double the energy of washing-up in a bowl (with the assumption that 45°C water is used in both cases).

Table 2.1. Comparison of energy consumption for hand dishwashing under running warm water, hand washing-up in a bowl and a dishwasher (Karlstads elnät, 2011).

Method	Energy consumption
Hand dishwashing under running warm water (45°C, 50-100 litres)	2-4 kWh
Hand dishwashing in a bowl (45°C, 20 litre)	1 kWh
Machine dishwashing with dishwasher connected to cold water supply, water heating, motor powered and drying element (10-15 litres)	1 kWh

Primary production

Significant aspects of primary production are the large consumption of energy and the use of finite resources. Hand dishwashing detergents contain several ingredients such as surfactants, solvents, fragrances, preservatives, colouring agents and sometimes complexing agents.

Packaging
The quantity of packaging material used for household chemical products is great and the size and quantity of packaging can vary in comparison to the size of the content. Figure 1 from Unilever's LCA illustrates that waste is an important parameter with regard to hand dishwashing detergent, which also includes packaging waste.

Transport and distribution
Transport is a significant parameter for both the ingredients and finished product. The finished product is first transported from the manufacturing plant to stores or other sales points and warehouses. The end user then transports the product to its point of use. Nordic Ecolabelling lacks data on the impact of the different stages of transport. Products are not always manufactured domestically but transported long distances by road or rail.

Potential

Potential is evaluated based on the environmental benefit within the specific product group and for each requirement area in the criteria.

Volume
The volume of hand dishwashing detergent sold today is still large despite that many people nowadays have a dishwasher. Correct dosing could reduce this volume.

Dosage and performance
Clear instructions as to dosage on the packaging or a dispenser reduce the risk of over-dosing since they make the consumer aware of how the product should be used. Correct dosing reduces the emissions of chemicals.

Testing the performance of a product ensures that the consumer is satisfied with the result, even at a low (correct) dose. The performance of products currently on the market varies. Nordic Ecolabelling ensures that labelled products offer good performance.

Ecotoxicity and biodegradability
Products that contain ingredients with low ecotoxicity and that are both aerobically and anaerobically biodegradable impact less on the environment than those that do not. Nordic Ecolabelling is aware that the ecotoxicity and biodegradability of ingredients in products on the market vary. There is potential to differentiate between products.

Health
The potential with regard to health aspects of hand dishwashing detergent is to reduce the number of new allergy sufferers. Today's products differ with regard to their content of allergens and other substances that are detrimental to health. Nordic Ecolabelling therefore sees potential in being able to differentiate between products and only label those with the least impact on health.

Use phase: Energy and water consumption
The energy consumed to heat dish water is considerable if all households are considered. Similarly, water consumption is significant, especially if dishwashing is performed under running water and not in a bowl.

Lowering the temperature of the washing water would save energy. However, since users most often use water that is around body temperature, it is unlikely that they would choose to use cold water.

If all users washed and rinsed their dishes in a bowl, this would save considerable amounts of water. This is however not presently the case. Hand dishwashing is for most consumers a complement to a dishwasher. This has influenced use patterns for hand dishwashing and lead to a greater proportion using running water (see also "User patterns").

Primary production
The environmental impact of primary production varies depending on the primary product being extracted. Nordic Ecolabelling has presently only limited information in this regard. In general, the use of less hand dishwashing detergent (reduced overdosing) reduces the consumption of primary products. Lower levels of production mean lower less primary production, which both reduces the energy required for extraction and/or processing and also reduced the quantity of packaging for the primary product.

Packaging
Reducing the amount of product packaging gives savings during transport and distribution and also reduces the amount plastic required. There are currently many different types of packaging for hand dishwashing detergent that or more or less environmentally suitable. Accordingly, there is potential for Nordic Ecolabelling only to label products packaged to optimise the weight-to-benefit ratio.

Transport and distribution
The ingredients used in hand dishwashing detergent are often transported long distances. Reducing these distances would reduce energy consumption and CO_2 emissions. However, it is difficult to quantify this effect.

Steerability

Steerability is an evaluation of the ability to set requirements with regard to significant environmental parameters.

Although some products on the market command a large share, Nordic Ecolabelling believes that ecolabelling can provide those actors and products that are at the forefront of environmental development a competitive advantage.

The purpose of the criteria is to reduce the potential environmental impact of the product. Environmental aspects related to the actual use of the product, such as heating the water, are not taken into regard since these are difficult for a hand dishwasher detergent to influence.
If in the future a product that works at low temperatures is developed, there may be cause to promote such in future criteria.

Volume, dosage and performance
Complete controllability over consumers' dosage habits and use of hand dishwashing detergents is very difficult to achieve. Nordic Ecolabelling requires however that clear information is provided to the consumer as to correct dosage. Nordic Ecolabelling has also chosen to take consumer habits into consideration and has altered the requirements on toxicity and biodegradability so that these mirror common consumer behaviour. The

purpose of this is to ensure minimum environmental impact in as usage situations as possible.

Ecotoxicity and biodegradability
The requirement on low ecotoxicity reduces the quantity of substances that are released into the environment. The manufacturer greatly influences which ingredients are added to the product and is aware of the environmental and health aspects of each ingredient. Accordingly, there is great scope to stipulate fully steerable requirements with regard to ecotoxicity and biodegradability.

Health
The criteria stipulate that only low levels of allergens may be included in the product and that fragrances may only be added if they contain low levels of allergens. The requirement as regards CMR (carcinogenic, mutagenic and reproductive toxic) classification is included to ensure that such substances are not included in the product. The manufacturer greatly influences which ingredients are added to the product and is aware of the environmental and health aspects of each ingredient. Accordingly, there is great scope to stipulate fully steerable requirements with regard to ecotoxicity and biodegradability.

Use phase: Energy and water consumption
It is very difficult to control how consumers use a product, both with regard to dosing and water consumption. Clear directions are required to inform consumers what dosage is required for best results.

Primary production/raw material production
The steerability of primary production is low since the licensee merely purchases the ingredients and has little control of the primary producer. The availability of renewable ingredients for the product group is limited and insufficient for all manufactures of hand dishwashing detergents.

Packaging
The quantity of packaging material in relation to the capacity of the content is limited by the weight-to-benefit requirement. A low weight of packaging material and many doses per package is desired. With this requirement, Nordic Ecolabelling wishes to promote less "unnecessary packaging" per dose. The manufacturer is able to influence the packaging used for their products. Accordingly, there is great scope to stipulate fully steerable requirements with regard to packaging.

Transport and distribution
There is limited scope for Nordic Ecolabelling to control the transport and distribution used by primary producers and manufacturers. Many manufacturers of hand dishwashing detergent do not have control over all of their shipping and the alternative modes of transport can be limited. Accordingly, this document does not specify any requirements on transport or primary products.

The requirements are based greatly on the characteristics of the ingredients, which can be determined with acknowledged methods. The most significant environmental impact can also be regulated by the requirements in the criteria document, i.e. controllability is achieved.

Criteria version and validity

The first generation of criteria for hand dishwasher detergent was adopted in February 1996 and was valid until 2002. The criteria have since been revised several times.

Version 2.0 was adopted in August 2001 and was valid until 1 August 2005.
The key changes were:

- The performance test was changed.
- The requirements were related to recommended dosages instead of to a functional dose.
- Antibacterial products were excluded from the product group.
- The product classification requirement was updated in accordance with the new Preparations Directive.
- Changes to dose-related environmental score, what was termed the matrix (based on parameters such as ecotoxicity and biodegradability).
- The introduction of package design requirements.
- The introduction of health-related requirements for fragrances (including allergies).
- New requirements regarding the anaerobic degradation of surfactants.

In connection with version 2.3, the validity of the criteria was extended to November 2006.

Version 3.0 was adopted in October 2005 and was valid until 31 October 2009. The most important changes since version 2.0:

- A new chemical list (DID list).
- An increase in the stringency of the CDV requirement (the old toxicity and degradability score)
- A tightening of the requirement relating to allergenic fragrances.
- The packaging requirement was changed to a weight-to-benefit ration (WBR).
- A new requirement relating to substances of very high concern (health and environment) was introduced.
- A new requirement for substances with long-term effects on the aquatic environment was introduced.
- A new requirement restricting the quantity of preservatives was introduced.
- A tightening of the requirement on the highest recommended dosage.

Version 4.0 was adopted in October 2008 and is valid until 31 October 2012.
In version 4, the requirement on fragrances was changed limiting the content of allergens to 100 ppm per substance. The validity of the document was also extended. Previously there were two alternative requirements.

The Nordic Market

The majority of Nordic households own a dishwasher. Roughly 80% of Norwegian households have a dishwasher (Lilleborg, April 2011). Despite this, many items are washed up by hand, primarily ones that are not dishwasher proof.

The Nordic hand dishwashing detergent market includes products from both large and small manufacturers. It includes private label and brand products. The proportion of ecolabelled hand dishwashing detergent varies between countries.

According to Finnish figures, the market for hand dishwashing detergent is still growing, if slowly[4].

The primary sales channel to consumers is through grocery stores. Grocery store chains thus have considerable influence over which products are available on the market. In Sweden, many consumer products are ecolabelled. This is in part due a strategy practiced by grocery stores to sell primarily ecolabelled household chemicals.

Nordic Swan Ecolabelled grocery stores are found in Sweden (more than 400 stores), Norway (69 stores) and Denmark (1 store). These all sell Nordic Swan Ecolabelled household chemicals such as hand dishwashing detergent.

On the professional market the primary channels are primarily purchasing organisations/ collaborations. These supply hotels, restaurants and institutional kitchens. Both professional and consumer products are used on the professional market.

The consumer market differs slightly between Nordic countries. In Finland and Sweden, Procter&Gamble's products (Fairy and Yes respectively) dominate the market, though other brands are available. Norway also has a clear market leader in Lilleborg's Zalo but other brands are also available. The situation in Denmark is somewhat different and there is no clear market leader.

Both professional and consumer products are used on the professional market. The products are manufactured by both small and large actors, such as Ecolab, Diversey, Kiilto, Cleano, Lilleborg and Rekal. Some products are sold in several of the Nordic countries.

Consumer habits

Hand dishwashing detergent is used in many different, both with regard to dosage and the use of running water or a bowl. An investigation conducted by Nordic Ecolabelling found that the use and dosing of hand dishwashing detergent varies. Many users who own a dishwasher use hand dishwashing detergent as a "semi-RTU, i.e. they pour the detergent directly on the dishes and add water rather than dosing according to the directions on the bottle into a bowl or sink.

Similar questions were posed to manufacturers who also believed that usage had changed over time and that the number of users who washed up according to the instruction in a bowl or sink had dropped. The same questionnaire asked manufacturers whether hand dishwashing detergent could be considered to have the same area of use and usage patterns as a ready-to-use kitchen product. Respondents answered that hand dishwasher detergent is often used as something between a concentrate and RTU product. Including both hand dishwashing detergent and RTU products in the same criteria would be difficult, especially with regard to the performance test since hand dishwashing detergent is generally more viscous than RTU detergents and since hand dishwashing detergents are primarily used for crockery, cutlery and pans while RTU detergents are used for surfaces.

[4] Teknokemiska Föreningen, statistics 2009-2010

Hand dishwashing detergents are also more commonly used in locations not connected to a communal sewage system than other cleaning agents. They are used on camping sites, in holiday homes and on boats and are released directly into nature.

Designing criteria that matches today's usage patterns is difficult. During this revision, we have compared different alternatives to see how we better can mirror actual consumer habits.

With the overdosing that results from present usage patterns, a more concentrated product results in greater emissions than a less concentrated product, which is undesirable. Nordic Ecolabelling also believes that the consumer/user is more likely to use a relatively smaller dose of a concentrated/viscous product than a less concentrated/less viscous product. This relationship between dosage and concentration is however non-linear. There is a threshold at which increased concentration no longer reduces dosage but instead increases overdosing. Accordingly, Nordic Ecolabelling has in this version of the criteria chosen to set environmental requirements based on a fixed dosage of 0.6 gram/litre in-use solution for products that have a recommended dosage below 0.6 g/l in-use solution. For products with a recommended dosage of 0.60-1.0 g/l in-use solution, calculations are performed at the recommended dosage. The maximum dosage of 1.0 gram/litre is found is the same as in previous versions of the criteria. It is included to preclude the unnecessary transport of water. The limit of 0.6 gram/litre in-use solution has been set since this is the median value for the hand dishwashing detergents investigated during the review. The draft for review specified a limit of 1 g/litre. Following many critical comments, this was adjusted to 0.6 g/l in-use solution. For further information, see the CDV requirement. The required fulfilment of the performance test prevents that the product is overly diluted.

Nordic Swan Ecolabel licences

Table 2.2. Number of licences, registrations and trade names for the Nordic Swan Ecolabel and EU Ecolabel (updated March 2011).

	Licences		**Registrations**		**EU Ecolabel**	
	Number of licences	Products/ Trade names*	Number of registrations	Products/ Trade names	Number of licences	Products/ Trade names
Sweden	8	50	6	9	-	-
Norway	1	1	5	8	-	-
Denmark	12	60	2	4	2	3
Finland	3	5	5	10	-	-

**Calculated based on the number trade names where different scents are considered different trade names but not different package sizes.*

Other labels

Good Environmental Choice

The Swedish Society for Nature Conservation has ecolabelling criteria, Good Environmental Choice, covering hand dishwashing detergents (Swedish Society for Nature Conservation, 2006). There are approximately 28 hand dishwashing detergents labelled with the Good Environmental Choice label (Swedish Society for Nature Conservation, www.snf.se, 2 March 2011). Licences are issued for both consumer and professional products.

EU Ecolabel
New EU Ecolabel criteria were adopted on 24 June 2011 and published 29 June 2011. These criteria include hand dishwashing detergents for both professional and consumer markets. Products containing microorganisms are prohibited by the criteria.

Avainlippu
Avainlippu (literally the key flag) is a label in Finland. The key flag can be awarded to products (or services) that are made in Finland. In addition, the product's "degree of domestic origin" is assessed, taking into account primary products, packaging materials and marketing costs. The "degree of domestic origin" must be at least 50%. It is a registered trademark that is administered by Förbundet för Finländskt Arbete (Federation for Finnish Work). It is not an ecolabel though many consumers believe it to be such due to regional production reducing transport distances. The label is used for hand dishwashing detergents (Avainlippu, 2011).

Detergents Regulation (EC) No 648/2004
The Detergents Regulation is EU legislation and must be observed. The regulation applies to all detergents and cleaning agents. Detergents and cleaning agents are defined in the regulation, as too are surfactants. The regulation applies to pure substances and preparations.

Biodegradability
The Detergents Regulation sets requirements on the biodegradability of surfactants in detergents and cleaning agents. Unlike previously, the regulation focuses on ultimate biodegradation rather than primary biodegradation.

Labelling
The regulation sets requirements on which constituent substances must be declared and how these shall be declared. There are requirements on dosage information and an ingredient datasheet as well as their publication.

All detergents and cleaning agents must bear a product name, trade name and/or trademark and contact details of the manufacturer. Information on from where datasheets can be ordered must also be provided. Detergents and cleaning agents must also be labelled with instructions for use and, if necessary, safety instructions. The Detergents Regulation does not annul the requirements on classification, packaging and labelling stipulated by the ClaP Regulation.

Charter for Sustainable Cleaning
In 2005, the International Association for Soaps, Detergents and Maintenance Products (A.I.S.E.) initiated the pan-European "Charter for Sustainable Cleaning" to promote the sustainability of household and industrial/institutional products. The charter applies in all the EU 27 states as well as Norway, Iceland and Switzerland and is open to all companies manufacturing, distributing or placing on the market such products.

To participate in the program, a company must annually report key performance indicators (KPIs) to A.I.S.E. such as chemical safety evaluation, poorly biodegradable organics, energy and water consumption and packaging. There are however no limit values that must be met. A.I.S.E. has summarised the results in a "sustainability report"(A.I.S.E, 2009).

Swedish Association against Asthma and Allergy
Chemical products that carry the label from the Swedish Association against Asthma and Allergy must fulfil three criteria: free from allergens, fragrance free and free from sensitising substances to an extent so that there is no known, medically reported case of hypersensitivity. This is primarily a health label found on chemical products such as laundry detergents, fabric conditioners, dishwashing detergents and soap (Astma&Allergi, 2011). The labelled products are recommended by the Swedish Association against Asthma and Allergy. This is not a pan-Nordic label. Limited transparency regarding financing and requirements erode the credibility of this label.

3 About the revision

Purpose of the revision

The purpose of this revision of the criteria for hand dishwashing detergent was to update the criteria, now version 5.0. Evaluations in 2008 and 2010 established that it was necessary to review the background to each requirement. In addition, the aim was to review the requirement on CDV, bring classifications in line with the CLP regulation, clarify requirement texts, evaluate the relevance of a standardised recommended dosage (SRD = standard dosage for 1 litre of water), and update requirements on fragrances and preservatives in the same way as for other chemical products.

It should also be evaluated whether ready-to-use products should be included in the product group as well as review chemical classifications that are limited or prohibited.

About this revision

The following people have participated in the project:
Project manager: Susanna Vesterlund (Sweden)
Project advisor: Arne Godal (Norway)
Nordic area coordinator: Ove Jansson/Karen Dahl Jensen

External support has been gained throughout the project and even in the evaluation that led to the revision.

4 Justification of the requirements

1 Environmental requirements

1.1 Description of the product

R1 Information on formulation

To evaluate whether the product is eligible for the product group, the criteria require a description of the product and its area of use as well as information enabling identification of the producer.

Nordic Ecolabelling requires an exact recipe with all constituent substances. This is needed to check each requirement and perform the calculations stipulated by the requirements.

The material safety data sheet shall be updated in accordance with European legislation which, at the time of writing (February 2012), means according to Annex II of REACH (Council Directive 1907/2006/EC).

The requirement should therefore be designed as follows:

> Applicants must provide detailed information on the formulation of the hand dishwashing detergent and enclose a safety data sheet for each ingredient. Information on the formulation must include:
>
> - Trade name
> - Chemical name
> - Proportion (dry and wet sample)
> - CAS no. for each ingredient. If an ingredient comprises several substances, this must be stated.
> - Function of each ingredient.
> - DID number for substances included on the DID list.
> - Health and environmental classification.
>
> *The DID number is the number assigned to the ingredient on the DID list, which is used for the evaluation of chemical requirements. The DID-list is available from Nordic Ecolabelling. See page 2 for addresses.*

☒ Comprehensive recipe for the product as stipulated by the requirement.

☒ Safety data sheet for each ingredient in accordance with European legislation in force.

1.2 Prohibited or limited constituent substances and mixtures

R2 Classification of the product

By setting environmental and health requirements, Nordic Ecolabelling ensures that products that are toxic or hazardous to health cannot be ecolabelled. The requirements are primarily stipulated for safety reasons since hand dishwashing detergents are not associated with such classifications.

Classifications such as flammable and explosive are removed from the draft since these are not considered relevant for this product group. The classification very toxic is included to prevent the introduction of products with this classification. Nordic Ecolabelling does not consider the risk great of products classified as very toxic appearing on the market but nonetheless includes the requirement. By defining requirements limiting or prohibiting substances with specific intrinsic characteristics, Nordic Ecolabelling can quell concerns regarding the safe use of chemical products and thus promote environmental and/or consumer issues. See also requirement 3. Prohibiting CMR substances is an important health parameter, which is why CMR classified substances are also prohibited at ingredient level (see requirement R3). But to avoid the introduction of products that are classified as CMR due to constituent substances (below the impurity limit of 100 ppm) reacting and forming compounds or products that demand that the detergent is classified as CMR, this requirement also prohibits products that are classified as CMR.

Classification as R41, found in previous versions but removed in June 2009, has also been omitted from this version. Hand dishwashing detergents contain high levels of surfactants (up to 25%). Surfactants are often classified as R41 (risk of serious eye injury), which generally means that the final product is classified as R41 in accordance with EU classification rules. The industry has previously classified hand dishwashing detergents as R36 (irritating to eyes) based on the industry's own classification regulations (AISE guidelines). Nordic Ecolabelling has when assessing applications noted that this classification is incorrect. However, since Nordic Ecolabelling is not a regulatory authority, the products have been approved based on the product classification.

Until 31 January 2016 hand dishwashing detergents may be classified as H412 if the classification is due to contents of surfactants classified as H411 or H412 caused by transition to CLP. However, it is provided that the surfactants are readily aerobically biodegradable and anaerobically biodegradable. The need for this exeption has been caused by late information about the new classifacation of the surfactants. Therefore, the license holders have had too short time to change to other surfactants which not will lead to H412 classification of the hand dishwashing product.

The requirement should therefore be designed as follows:

> Products must not be classified according to the European Dangerous Substances Directive 67/548/EEC with amendments and/or CLP Regulation (EC) No 1272/2008 with amendments, as specified in Table 1. Classification according to the EU Dangerous Substance Directive or the CLP Regulation may be used during the transition period, i.e. until 1 June 2015. Following the transition period, classification according to the CLP Regulation is to apply exclusively (see Table 1).

Table 1. Product classification

Classification	Hazard symbol and risk phrase / Hazard class, category and statement	
	CLP Regulation 1272/2008	Dangerous Substances Directive 67/548/EEC
Dangerous for the environment	Hazardous to the aquatic environment Category Acute 1 H400; Category Chronic 1 H410; Category Chronic 2 H411; Category Chronic 3 H412*; Category Chronic 4 H413	N with R50 R50/53 or R51/53. R52 R53 or R52/53 without N
Very toxic	Acute toxicity, Category 1 or 2 with H330, H310 and/or H300, and/or Specific target organ toxicity – single exposure, Category 1 with H370	Tx (T+ in Norway) with R26, R27, R28 and/or R39

Toxic	Acute toxicity, Category 2 or 3 with H330, H331, H311 and/or H301, and/or Specific target organ toxicity – single exposure, Category 1 with H370, and/or Specific target organ toxicity – repeated exposure, Category 1 with H372	T with R23, R24, R25, R39 and/or R48
Harmful	Aspiration hazard, Hazard Category 1 with H304 and/or Specific target organ toxicity – single exposure, Category 2 with H371, and/or Specific target organ toxicity – repeated exposure, Category 2 with H373 Acute toxicity, Category 4 with H332, H312 or H302	Xn with R20, R21, R22, R48, R65 and/or R68
Sensitizing	Respiratory sensitisation, Category 1 with H334 or Skin sensitisation Category 1 with H317	Xn with R42 or Xi with R43
Carcinogenic	Carc. 1A or 1B; H350 Carc. 1A or 1B; H350i Carc. 2; H351	Carc. cat. 1 or 2; R45 Carc. cat. 1 or 2; R49 Carc. cat. 3; R40
Mutagenic	Muta. 1B; H340 Muta. 2; H341	Muta. cat. 2; R46 Muta. cat. 3; R68
Reproductive toxic	Repr. 1A or 1B; H360F Repr. 1A or 1B; H360D Repr. 2; H361f Repr. 2; H361d Lact, H362	Repr. cat. 1 or 2; R60 Repr. cat. 1 or 2; R61 Repr. cat. 3; R62 Repr. cat. 3; R63 R64

Classification according to EU Dangerous Substance Directive 67/548/EEC and EU Dangerous Preparation Directive 1999/45/EC with amendments.

Products may be classified as H412 until **31 January 2016, if the classification is due to contents of surfactants classified as H411 or H412 caused by transition to CLP. However, it is provided that the surfactants are readily aerobically biodegradable and anaerobically biodegradable.*

Note that the producer is responsible for classification.

☒ Safety data sheet for the product in accordance with European legislation in force.

R3 CMR substances

By defining requirements limiting or prohibiting substances with specific intrinsic characteristics, Nordic Ecolabelling can quell concerns regarding the safe use of chemical products and thus promote environmental and/or consumer issues and highlight consumer concerns.

The prohibition of CMR substances and the limitation of environmentally hazardous substances are part of Nordic Ecolabelling's environmental toxin policy. The prohibition of CMR substances has an important symbolic value but is unlikely to influence the formulation of hand dishwashing detergents in practice. Form a health perspective CMR substances are undesirable in hand dishwashing detergents since the product group is used by consumers in the home.

The term constituent substance refers to both substances contained in the ingredient and substances that can be liberated such as formaldehyde.

Lilial (CAS 80-54-6) has the self-classification Rep3 with R62 and is therefore prohibited by this requirement. Since fragrances are added intentionally and since they fulfil a

function, a trivial lower limit is not applicable for fragrances. Lilial cannot therefore be added to a product due to this CMR requirement.

NTA is classified as Carc Cat.3 (EU, 2008b). NTA is therefore prohibited from use due to its classification.

Complexing agents that replace NTA (GLDA and MGDA) contain small quantities of NTA impurities from production (as specified on the MSDS for the ingredient). Nordic Ecolabelling's review of licensed products establishes that the need for complexing agents in hand dishwashing detergent is limited. An exception for NTA is thus not found in this criteria version. This means that this type of complexing agent may not be used in ecolabelled hand dishwashing detergents if they contain more than 0.010% NTA.

The requirement should therefore be designed as follows:

> The product must not contain substances that are classified with any of the following hazard categories or risk phrase or combinations of these (see Table 2).
>
> **Table 2 Classification of constituent substances**
>
Hazard class	Hazard category and hazard statement (Regulation (EC) No 1272/2008[1])	Equivalent hazard category and risk phrase (Directive 67/548/EEC[2])
Carcinogenic	Carc. 1A or 1B; H350 Carc. 1A or 1B; H350i Carc. 2; H351	Carc. cat. 1 or 2; R45 Carc. cat. 1 or 2; R49 Carc. cat. 3; R40
Mutagenic	Muta. 1B; H340 Muta. 2; H341	Muta. cat. 2; R46 Muta. cat. 3; R68
Reproductive toxic	Repr. 1A or 1B; H360F Repr. 1A or 1B; H360D Repr. 2; H361f Repr. 2; H361d Lact, H362	Repr. cat. 1 or 2; R60 Repr. cat. 1 or 2; R61 Repr. cat. 3; R62 Repr. cat. 3; R63 R64
>
> [1] *Applicable from Dec. 2010*
>
> [2] *Applicable in transition period to Regulation (EC) no 1272/2008 from Dec. 2010 to June 2015*
>
> The requirement also applies to substances that liberate/degrade to substances with the above classifications.

☒ Duly completed and signed declaration of conformity with product requirements (Appendix 3 or equivalent) and ingredient requirements (Appendix 4 or equivalent).

R4 Allergenic substances

If the product contains more than 0.10% but less than 1% of substances that are classified as H334/R42 and/or H317/R43 according to Regulation (EC) No 1272/2008 or Directive 67/548/EEC, the product is not subject to classification with R42 or R43 but the substances must be declared on the product. Hand dishwashing detergents come into direct contact with the hands and exposure is prolonged. Accordingly, allergens are undesirable in hand dishwashing detergents.

The requirement thus limits sensitising substances to 0.10% (per substance) of the product. This clarification of 0.10% by weight per substance was made following the review period.

The requirement should therefore be designed as follows:

> The product must not contain ≥0.10% by weight per substance of substances that are classified as H334/R42 and/or H317/R43 according to Regulation (EC) No 1272/2008 or Directive 67/548/EEC.
>
> See also the separate requirement on fragrances, R5.

✉ Duly completed and signed declaration of conformity with product requirements (Appendix 3) and ingredient requirements (Appendix 4).

R5 Fragrances

Fragrances do not enhance the cleaning performance of a product. Also, fragrances contain many substances that have negative health effects, above all sensitising, and also negative environmental impact.

The majority of fragrances contain substances that are classified as H334/R42 and/or H317/R43. But to totally prohibit fragrances is not considered justifiable in relation to the effect of fragrances at such low concentrations. It is considered likely that a total ban on sensitising fragrances would reduce the market share of Nordic Swan Ecolabelled hand dishwashing detergents and thus reduce the total environmental benefit of ecolabelled products within this category, since many consumers prefer fragranced products.

Since both stores and manufacturers consider fragrances important to the sales in this product group, fragrances are permitted for hand dishwasher detergents designed for the consumer market.

It is required to fulfil International Fragrance Association guidelines[5] (IFRA). This ensures that the manufacture, handing and use of fragrances in the product fulfil specific standards regarding prohibited substances, limited use and purity. IFRA guidelines support participation to offer products that are safe for consumers and the environment. The guidelines cover the manufacturing and handling of all fragrances for all applications and contain the complete IFRA standards.

The limitation of sensitising fragrances aims to reduce the risk of allergies among users of ecolabelled hand dishwashing detergents.

The aim of the requirement on allergenic fragrances in Nordic Swan Ecolabelled products is to reduce the risk to allergy sufferers. Nordic Ecolabelling considers it relevant to place more stringent requirements than the legal limits regarding allergenic substances and their declaration.

Requirement b covers the allergens on the 26 list (see the table in Appendix 2). These are subject to declaration in accordance with Regulation (EC) No 648/2004 on detergents and are limited to 100 ppm.

Requirement c covers all other fragrances that are classified as allergens with H317/R43 and/or H334/R42, the content of which is limited to 100 ppm.

[5] See: http://www.ifraorg.org/GuideLines.asp.

Nordic Ecolabelling considers that there is strong justification for this requirement since hand dishwashing detergent comes into direct contact with the user's skin. The hands are subject to prolonged exposure making allergenic substances undesirable.
The requirement contains a clarification that even fragrances from plant extracts are included in the definition.

Please note that nitro musks in fragrances are prohibited by requirement 7.

Note that Lilial (CAS 80-54-6) has the self-classification Rep3 with R62 and is therefore prohibited by this requirement. Since fragrances are added intentionally and since they fulfil a function, a trivial lower limit is not applicable for fragrances. Lilial cannot therefore be added to a product due to CMR requirement R3.

The requirements should therefore be designed as follows:

The requirement also covers fragrant plant extracts.

a) The use of fragrances shall follow IFRA guidelines (International Fragrance Association).

b) Fragrances subject to declaration in accordance with Regulation (EC) No 648/2004 on detergents with amendments may not be present in concentrations greater than 100 ppm (>0.010%) per substance. See Appendix 6. See also R4 regarding the content of allergens in the product.

c) Fragrances that are classified as H317/R43 and/or H334/R42 must not be present at concentrations above 100 ppm (>0.010%) per substance. See also R4 regarding other allergens in the product.

☒ Duly completed and signed declaration from the manufacturer of the hand dishwashing detergent that demonstrates that fragrances are handled and/or manufactured according to IFRA guidelines, as stipulated by requirement R5a. Appendix 3 and 4 can be used.

☒ Duly completed and signed declaration from the fragrance manufacturer as to the content of applicable fragrances and any plant extracts Appendix 4 or similar documentation (e.g. analysis certificate for the 26 allergens and information on substances classified as R42/H334 and/or R43/H317) may be used.

R6 Fragrances in professional products

Fragrances are not permitted in professional products. Professional users use hand dishwashing detergents in a working environment and do not control which products are purchased. A kitchen porter is most often unable to choose whether the product is fragrance free or not and may be involuntary exposed to fragrances. A similar situation applies regarding public procurement where products are bought for entire boroughs, counties and institutions and the end-user (kitchen porter) has no influence over product choice. A kitchen porter is exposed to more detergent than consumers.

Professional products include products that are marketed for use in a professional context, such as institutional kitchens, catering kitchens, restaurants and public services. Products are not considered professional products if they are exclusively sold through retail outlets.

Nordic Ecolabelling is aware that some products are primarily designed for the consumer market but are also sold wholesale to professional users. Ecolabelling's control is then limited. Accordingly products that are primarily designed for the consumer market are treated as consumer products. A product is considered to be specific to a certain market

(consumer or professional) if >80% of sales are on that market. This limit value of 80% clearly identifies on which market the majority of a product is sold.

The requirement includes clarification as to what is classed as a professional product and what is classed as a consumer product. If Nordic Ecolabelling finds uncertainty as to the correct classification of the product, the applicant must submit sales statistics or similar demonstrating on which market the product is sold.

The requirement should therefore be designed as follows:

> Fragrances are not permitted in professional products.
>
> *Professional products include products that are marketed for use in a professional context, such as institutional kitchens, catering kitchens, restaurants and public services.*
>
> *If a product is sold on both professional and consumer markets, it is considered a professional product if more than 80% of sales are to the professional market. If there is doubt as to whether the product is for professional use or consumer use, Nordic Ecolabelling may request documentation supporting claims.*

✉ Recipe as per requirement 1 that demonstrates the absence of fragrances.

R7 Prohibited substances

There are several problematic substances that are difficult to prohibit through requirements on a product's chemical composition. Accordingly, Nordic Ecolabelling has compiled a list of substances that may not be added to the product or be found in compounds at concentrations above 100 ppm. The aim of the list is to prohibit only the substances that are not forbidden by other requirements but that have associated health and environmental risks.

Quaternary ammonium salts that are not readily biodegradable.
The criteria prohibit quaternary ammonium compounds of cationic surfactants with adverse environmental effects such as a lack of biodegradability. There are subsets (such as ester quats) that have better environmental properties that are not prohibited. Quaternary ammonium compounds are often very toxic to aquatic organisms. If such a compound is also non-readily biodegradable it is classified as N with R50/53. Quaternary ammonium compounds are associated with bacterial resistance to antibiotics and with causing certain allergic reactions.

APEO and APD: Alkylphenolethoxylates (APEO) or alkylphenol derivatives (APD) are a group of persistent surfactants that have displayed endocrine disruptive characteristics. These substances have been phased out in the majority of products through legislation. The substances are prohibited by the requirement on surfactants (R12). Declaring APEO and APD along with other substances under requirement 7 is considered a small burden for the applicant but simplifies processing the application.

Methyldibromoglutaronitrile (MG) is highly allergenic. Studies show that it is so allergenic that a product containing the substance can cause allergic reactions even if washed off immediately[6]. MG is classified as harmful to health, Xn with R20/21/22, and

6 Dobel, Shima, article published by Danish Environmental Protection Agency 15/4-05: "Dansk pres giver resultat: EU-forbud på vej mod konserveringsmidlet MG i kosmetik" (Danish pressure yields results: EU prohibition on MG preservatives in cosmetics soon in place)

is accordingly not prohibited through other requirements on the classification of constituent substances.

Nitromusks and polycyclic musks generally have undesirable effects to both health and the environment. Several such compounds are prohibited through the requirement on CMR substances. Inquiries with fragrance manufacturers have confirmed that many European companies still use polycyclic musks in consumer products. The use of nitromusks is very limited but manufacturers outside Europe still use fragrances such as Musk Ambrette, which is prohibited by IFRA. Prohibiting the use of nitromusks and polycyclic musks is therefore still relevant as a preventative measure.

Ethylenediaminetetraacetic acid (EDTA) and its salts are not readily biodegradable and, according to the EU's risk evaluation, in conditions found in municipal wastewater treatment EDTA is non-biodegradable or poorly biodegradable (Cefic, 2009). There are now more environmentally suitable alternatives that are biodegradable and that can replace EDTA. One such is methylglycine diacetic acid (MGDA). The EU is also working actively to limit the use of EDTA in the paper and pulp industry (Official Journal of the European Union, 2006/C 90/04). EDTA is used as a chelating agent in many chemical products.

Potential endocrine disrupters are substances that can influence the hormonal balance in humans and animals. Hormones control a range of vital functions in the body and are especially important to the development and growth of humans, animals and plants. Changes to an organism's hormonal balance can have undesirable effects. In particular focus are hormones that control gender development and reproduction. Several studies have shown effects on animals that are presumed to result from changes in their hormonal balance. Emissions to the aquatic environment are the primary source of endocrine disrupting substances. (State of Environment Norway, 2008b). Nordic Ecolabelling prohibits the use of substances that are potential endocrine disrupters of Category 1 (evidence of endocrine disrupting activity in at least one species using intact animals) or Category 2 (at least some in vitro evidence of biological activity related to endocrine disruption) according to the original EU report on endocrine disrupters (EU, 2000) or subsequent studies (EU, 2002a, 2000b and 2007). See http://ec.europa.eu/environment/chemicals/endocrine/pdf/final_report_2007.pdf
PBT (**Persistent, bioaccumulable and toxic**) and **vPvB** (very persistent and very bioaccumulable) organic substances are defined in Annex XIII of REACH (Directive 1907/2006/EC) (EU, 2006). Nordic Ecolabelling considers such substances as generally undesirable.

The majority of PBT/vPvB substances are automatically excluded from use in hand dishwashing detergent by the restrictions on environmentally harmful substances (see R11). Since some substances, above all vPvB, are not excluded by R11, Nordic Ecolabelling prohibits these directly.

Substances that are inherently PBT or vPvB, or substances that form compounds that are PBT or vPvB can be found on the European Chemical Bureau's website. http://ecb.jrc.it/esis/index.php?PGM=pbt (ECB, 2009).

Substances that are "deferred" or "under evaluation" are not considered to have PBT or vPvB properties.

Substances of very high concern (SVHC) due to classification as Carc. Cat. 1 or 2, Muta. Cat. 1 or 2, Repr. Cat. 1 or 2, PBT or vPvB substances, or other substances for

which scientific evidence suggests probable serious effects to human health or the environment (e.g. endocrine disrupters) are not permitted in hand dishwashing detergents.

Substances on the candidate list and substances waiting for inclusion on the candidate list for REACH registration, i.e. substances of very high concern, are not expected to be present in ecolabelled products since ECHA defines such substances as CMR classified. PBT and vPvB substances are already excluded by that requirement. However, substances can also be evaluated case-by-case for inclusion on the candidate list. Nordic Ecolabelling wishes therefore, based on a precautionary principle, to include substances of very high concern in this requirement. The full list is available at: http://echa.europa.eu/chem_data/candidate_list_en.asp.

CMR, PBT and SVHC in packaging
During the review period, comments were received regarding the prohibition of substances classified as CMR, PBT and SVHC even in packaging. Nordic Ecolabelling considers that there is currently little risk of such substances being introduced into thermosetting plastic packing for hand dishwashing detergents. Nordic Ecolabelling has therefore decided not to introduce such a requirement.

The requirement should therefore be designed as follows:

> **The product must not contain the following substances.**
>
> - APEO (alkylphenol ethoxylates) or its derivatives
> - APD (Alkylphenol derivatives)
> - EDTA (ethylene diamine tetraacetate) and its salts
> - Quaternary ammonium salts that are not readily biodegradable.
> - Methyldibromoglutaronitrile (MG)
> - Nitromusks and polycyclic musks
> - Substances with potential for endocrine disruption of Category 1 or 2 in accordance with official EU lists. The EU report on endocrine disrupters can be read in full at http://ec.europa.eu/environment/endocrine/documents/final_report_2007.pdf (from Appendix L, pp 238)
> - Substances that have been evaluated in the EU to be PBT (Persistent, bioaccumulable and toxic) or vPvB (very persistent and very bioaccumulable) in accordance with Annex XIII of REACH.
> - Substances of very high concern listed on the candidate list http://echa.europa.eu/chem_data/candidate_list_en.asp.
>
> ✉ Duly completed and signed declaration of conformity with the requirement: Appendix 3 or equivalent for the product and Appendix 4 or equivalent for ingredients.

R8 Colouring agents

Colouring agents are primarily added for aesthetic reasons. However, some ingredients may also be coloured. Colouring agents are added in very small quantities and are therefore not considered to be a primary environmental aspect of hand dishwashing detergents. Colouring agents are also regulated by the CDV requirement.

The criteria require that colouring agents are permitted by the EU directive on foodstuffs or that they are not bioaccumulating. Colouring agents that are approved for use in food-

stuffs are presumed not to be environmentally hazardous. Colouring agents that are non-bioaccumulating do not enter the food chain and thus have limited environmental effects.

Bioaccumulating compounds collect in the fatty tissues of living organisms and can cause long-term damage to the environment.

If nothing else is proven, the substance is classified as bioaccumulating if $\log K_{ow} \geq 4.0$ in accordance with OECD guidelines 107, 117 or equivalent. Such a substance can be tested on fish according to OECD test method 305 A-E. If the substance's biologic concentration factor (BCF) is greater than 500, the substance is deemed bioaccumulating, and if lower than 500 non-bioaccumulating. If the substance has a BCF, this determines the substance's bioaccumulation potential.

The requirement should therefore be designed as follows:

> Colouring agents that can be found in the product or in ingredients must not be bioaccumulating. A colouring agent is not considered bioaccumulating if BCF < 500 or $\log K_{ow} < 4.0$. If both BCF and $\log K_{ow}$ values are available, the highest recorded BCF value shall be used. Colouring agents approved for foodstuffs may be accepted.

✉ Documentation of the colouring agent's BCF or $\log K_{ow}$ or specification of E-number.

R9 Preservatives

Preservatives are added to liquid products to prevent bacterial growth. Hand dishwashing detergents often require preservatives. They are not self-preserving in the same way as liquid laundry detergents. It is therefore necessary to allow the use of preservatives in hand dishwashing detergents. Nordic Ecolabelling therefore wishes to limit the use of preservatives by stipulating requirements on bioaccumulation and concentration.

In general, preservatives are generally toxic to aquatic organisms and can produce hypersensitivity and allergies. Preservatives can be used in the product and the constituent substances only if they are not bioaccumulating. Bioaccumulating compounds collect in the fatty tissues of living organisms and can cause long-term damage to the environment.

If nothing else is proven, the substance is classified as bioaccumulating if $\log K_{ow} \geq 4.0$ in accordance with OECD guidelines 107, 117 or equivalent. Such a substance can be tested on fish according to OECD test method 305 A-E. If the substance's biologic concentration factor (BCF) is greater than 500, the substance is deemed bioaccumulating, and if lower than 500 non-bioaccumulating. If the substance has a BCF, this determines the substance's bioaccumulation potential.

Nordic Ecolabelling considers that there are many preservatives that fulfil this requirement, i.e. the potential is not great but rather the requirement is included to maintain the level that has been achieved. The requirement ensures that undesirable preservatives are not reintroduced and enter the ecosystem.

To avoid the unnecessary use of preservatives and to ensure that the quantity of preservatives is sufficient, a requirement is set regarding the quantity of preservatives in relation to the volume of the product. This is documented using a Challenge test (provocation test) and shall be performed during the development of the product. This is a new requirement

in this criteria version that aims to avoid unnecessarily high quantities of preservatives in the product.

If small changes are made to the recipe that does not influence the quantity of preservatives, it is not required to repeat this test. If the preservative is changed or if other ingredients are substituted that influence the need for preservatives, the test must be repeated.

Challenge test designates a group of tests used to determine the correct/necessary concentration of preservatives in products. Test samples are prepared with different concentrations of preservatives (for example 2%, 1%, 0.5% and 0.25%) as well as a control without preservatives. A mixture of bacteria, yeasts and moulds are added to the samples. The time for how long a test goes on varies depending on what the main purpose of the test is and under what test conditions the tests are performed such as type of organisms (which depends on how the final product is to be used), pH, temperature /such parameters are not specified in a Challenge test) and so on. The sample with the lowest concentration of preservatives that does not exhibit microbial growth has the correct/optimum concentration of preservatives. Different manufacturers and suppliers of preservatives use different challenge tests/methods to determine the correct concentration of preservative. Examples include: Koko Test (Test Method SM 021), USP Challenge Test (US Pharmacopoeia) and CTFA Challenge Test (Cosmetics Toiletries and Fragrance Association).

The requirement should therefore be designed as follows:

a) Preservatives that can be found in the product or in ingredients must not be bioaccumulating. Preservatives are considered biodegradable if BCF < 500 or $\log K_{ow}$ < 4.0. If both BCF and $\log K_{ow}$ values are available, the highest recorded BCF value shall be used.

b) The concentration of preservatives shall be optimised to the volume of the product. A challenge test or equivalent shall be used to demonstrate this.

✉ Documentation of BCF or $\log K_{ow}$.

✉ Test report of conducted challenge test or equivalent demonstrating that an optimal concentration of preservatives is used in the product. See Appendix 2 for requirements on test laboratories and information on challenge tests.

1.3 Dosage, ecotoxicity and biodegradability

During the project, an internal survey was conducted to gain an understanding of how hand dishwashing detergent is dosed in a domestic setting (see also the section "Consumer habits"). The survey concluded that users do not following the recommended dosage instructions for the hand dishwasher detergent. Overdosing and dosing without a measure are commonplace. Many households have a dishwasher and only washing-up a small proportion of the dishes by hand. Accordingly, users do not always fill a bowl or sink with water but use the detergent at higher concentrations than recommended. See also the section "Consumer habits".

During the revision, different estimations have been made to better mirror how consumers use the product.

Calculations have been made as if the products were ready-to-use, but the products are diluted before use so this is not an optimal solution.

Another variation is to specify a maximum recommended dosage and to calculate CDV based on the active content. A high active content but low CDV value favours concentrated products with low environmental impact. This variant is based on the idea of a "manufacturer's dose" in the form of active content per 1000 ml product.

The dosage used by consumers, according to our experience, is not in line with that recommended by the manufacturer. Nor do we have evidence to suggest that products requiring a lower dosage are actually dispensed in smaller quantities.

On the other hand, there is a correlation between viscosity and active content. Products with a high active content are often more viscous. It is possible that more viscous products are dispensed in smaller dosages than those containing large amounts of water. Nordic Ecolabelling also believes that the consumer/user is more likely to use a relatively smaller dose of a concentrated/viscous product than a less concentrated/less viscous product. This relationship between dosage and concentration is however non-linear. There is a threshold at which increased concentration does no longer reduces dosage but instead increases overdosing.

Since the situation regarding use, dosage and viscosity is complex, Nordic Ecolabelling has devised a requirement that takes into account both overdosing and the wish to avoid the unnecessary transport of water (in products with high water contents).

We have identified that the recommended dosage of our ecolabelled products lies between 0.2 and 1.0 g/l. The limit value for CDV calculation is designed to favour products with higher viscosity. Products with a recommended dosage ≤0.6 g/l in-use solution (the median value for ecolabelled hand dishwashing detergent investigated in this revision) shall be dosed at 0.6 g/l in-use solution for CDV calculations. Products with a higher recommended dosage (i.e. 0.61–1.0 g/l) shall be dosed at the recommended dosage.

This method is not ideal for all use cases but is judged as correct in the context for the range of products that exists. Nordic Ecolabelling does not wish to promote the most concentrated products since investigations suggest that users do not follow dosage instructions. At the same time, Nordic Ecolabelling does not wish to promote very dilute products.

A review of Nordic Swan Ecolabelled products showed that the products requiring the lowest dosages were primarily consumer products. It is however plausible that professional users are better or more careful when dosing detergent. See also CDV under R13.

R10 Maximum dosage

To avoid the unnecessary transport of water, the criteria limit the permitted dosage. The requirement has been kept at the same level as previously, i.e. 1 gram per litre of water.

The requirement should therefore be designed as follows:

> Dosage is calculated as the recommended dosage in grams per litre of water.
>
> The recommended dosage must not exceed 1.0 gram per litre of water.
>
> *For density calculations, density at room temperature shall be used. If the dosage is specified as an interval, the highest figure in the interval shall meet this requirement (as too regarding WBR in R16).*

☒ Calculation of dosage per litre of water and a product label (or draft label) with the specified dosage.

R11 Long-term environmental effects

Substances that are classified as environmentally hazardous are permitted in limited quantities in hand dishwashing detergents. Persistent substances may cause environmental problems now or in the future. The impact can be particularly serious if the substance is also acutely toxic. Limits on the use of substances with these undesired properties reduce the risk of environmental damage. The environmental characteristics of the constituent substances in hand dishwashing detergent are particularly important since hand dishwashing detergent is used extensively in locations lacking a connection to a central sewage system. Accordingly, the maximum content of environmentally hazardous substances with the following risk phrases is limited.

- R50/53 (Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.)
- R51/53 (Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.)
- R52/53 (Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.)

Or

- H410 Hazardous for the aquatic environment. Category: Chronic 1
- H411 Hazardous for the aquatic environment. Category: Chronic 2
- H413 Hazardous for the aquatic environment. Category: Chronic 3

By weighting the parameters, substances classified as R50/53 are restricted the most. The level is in line with the limit for consumer laundry detergent.

The weighting in the formula below is linked to the classification limits for each classification. There was a need to improve the how these different environmental classifications were totalled through the use of a weighting system to better reflect the actual environmental impact. I.e. it is viable to permit more of a less environmentally hazardous substance than of a more hazardous substance. The weighting in the requirement is the same as the Nordic Ecolabelling' criteria for chemical products.
Requirement: $FV = 100 * A_{R50/53} + 10 * A_{R51/53} + A_{R52/53} \leq 0.030$

This limit is set based on licence data that Nordic Ecolabelling has collected. Products with a recommended dosage >0.60 g/l are added at the recommended dosage. Products with a recommended dosage ≤0.60 g/l are added at 0.6 g/l.

The relationship between the different classifications is shown in the table below (KIFS 2005:7):

Table 4.1. Simplified summary of the relationship between different environmental classifications.

	Classification of the preparation		
Classification of substance	**N; R50/53**	**N; R51/53**	**N; R52/53**
N; R50/53	Conc. ≥ 25%*	2.5% ≤ Conc. < 25%*	0.25% ≤ Conc. < 2,5%*
N; R51/53		Conc. ≥ 25%	2.5% ≤ Conc. < 25%

N; R52/53			Conc. ≥ 25%

**This is somewhat simplified since KIFS 2005:7 also takes the toxicity of constituent substances into account.*

To make the weighting formula more similar to the classification, the possibility has been discussed to divide the classification R50/53 into several sub-categories depending on the toxicity classification of the substances. But since such information is seldom available and the quantities are small of these substances, which are already tightly restricted, Nordic Ecolabelling has decided following the review to keep the weighting as above. This may be reviewed in the future if better data is available.

The following requirement is therefore proposed:

Substances that are classified as environmentally hazardous are only permitted in limited quantities in the product, as specified below.

Substances that are classified with any of the following risk phrases R50/53, R51/53 or R52/53 or hazard statements H410, H411 or H412are limited as follows:

Requirement: $FV = 100 * C_{R50/53} + 10 * C_{R51/53} + C_{R52/53} = 0.030$ gram / litre in-use solution

or

Requirement: $FV = 100 * C_{H410} + 10 * C_{H411} + C_{H412} = 0.030$ gram / litre in-use solution

Where:

FV = Factor value

$C_{R50/53 / H410}$ = concentration of substances classified as R50/53 or H410 in gram/litre in-use solution *

$C_{R51/53/ H411}$ = concentration of substances classified as R51/53 or H411 in gram/litre in-use solution *

$C_{R52/53/ H412}$ = concentration of substances classified as R52/53 or H412 in gram/litre in-use solution *

** the constituent quantity in the product of the substance with the classification in question at a dose of 0.60 gram/litre in-use solution if the dosage specified on the label is ≤ 0.6 g/l. If the specified dosage of the product is greater than 0.60 g/l in-use solution, the specified dosage shall be used.*

Surfactants classified with H411 or H412 are exempted from the requirement, provided that they are readily degradable* and anaerobically degradable**.

** In accordance to the DID-list or test method No. 301 A-F or No. 310 in OECD guidelines for testing of chemicals or other equivalent test methods.*

*** In accordance to the DID-list or ISO 11734, ECETOC No. 28 (June 1988) or other equivalent test methods, where a minimum of 60% degradability under anaerobic conditions is achieved.*

If no details of a substance's environmental properties are available it is considered a "worst case" environmental hazard with classification R50/53 (H410).

☒ Declaration of surfactants that are exempted from the requirement (quantity, classification, degradability).

☒ Summary of the product's content in percentage by weight of substances classified as R50/53 (H410), R51/53 (H411) and R52/53 (H412). Appendix 3 for the product and Appendix 4 for ingredients, or equivalent, can be used to document the content of the specified substances.

☒ Calculations according to the specified formula demonstrating the fulfilment of the requirement.

☒ Material safety data sheet for each constituent ingredient specifying its environmental hazard (acute aquatic toxicity, biodegradability and/or bioaccumulating characteristics) as for R1.

R12 Surfactants – aerobic and anaerobic biodegradability

Surfactants are widely used in hand dishwashing detergents. Since hand dishwashing detergents are used both in areas that are and that are not connected to a district sewage system, it is relevant to set requirements as to the biodegradability of surfactants.

Persistent substances accumulate in the environment. These may present a present and future risk if they are acutely toxic. Knowledge regarding the long-term effects of persistent substances is often lacking. Ready biodegradability under aerobic and anaerobic conditions is therefore of great environmental significance. Surfactants are considered central in this context since they represent a group of organic compounds that are found in relatively large quantities. Also, many surfactants are toxic to aquatic organisms. The Detergents Regulation stipulates that surfactants must be aerobically biodegradable. That a product is available on the market does not necessarily mean it complies with legislation. There are also exemptions from this legislation for professional products. Article 4, item 2 in the Detergents Regulation states the following: "*If a detergent contains surfactants for which the level of ultimate aerobic biodegradation is lower than that stipulated in Annex III, manufacturers of industrial or institutional detergents containing surfactants, and/or of surfactants for industrial or institutional detergents, may ask for derogation. Requests for derogation shall be made and decided in accordance with Articles 5, 6 and 9.*"

Nordic Ecolabelling considers that there is still relevance in requiring that the surfactants in a hand dishwashing detergent are biodegradable under both aerobic and anaerobic conditions. All surfactants (irrespective of function) must be readily biodegradable and anaerobically biodegradable.

In the most recent version of the EU Ecolabel criteria for hand dishwashing detergent, the requirement that all surfactants must be biodegradable under anaerobic conditions has been removed. Instead, there is a limit on the total quantity of organic substances that are not biodegradable under anaerobic conditions. Nordic Ecolabelling does not that consider the environmental benefits justify removing this requirement on anaerobic biodegradability but has chosen to retain this requirement.

The requirement should therefore be designed as follows:

a) All surfactants must be readily aerobically biodegradable.
b) All surfactants must be anaerobically biodegradable

- ✉ Reference to the DID list dated 2014 or later.
- ✉ If the DID list does not contain relevant data, data can be taken from the material safety data sheets provided that the data are reliable and that test methods comply with Appendix 2. Section B of the DID list shows how the various factors are calculated. It is also permitted to refer to analogous arguments as long as these are carried out by a competent third party. It is also permitted to refer to relevant literature that has been scientifically evaluated.

R13 Critical dilution volume (CDV)

The critical dilution volume (CDV) shall be calculated for all chemicals contained in the hand dishwashing agent. CDV is a theoretical value that takes into regard each substance's toxicity and biodegradability. This method has been developed together with EU Ecolabelling.

The CDV limit can be documented using either acute or chronic data. In general, the use of chronic data is preferred since the long-term values are considered more accurate and give a more precise/reliable estimate of the potential environmental effects than acute toxicity data. In future criteria, Nordic Ecolabelling wishes to move towards only setting requirements on $CDV_{chronic}$. The DID list was updated in 2014. The limit values in version 5.0 and 5.1 were based on Nordic Swan Ecolabel licences and products, using version 2007 of the DID list.

After updating of the DID list in 2014, additional chronic data were included. After a review of license data based on the new 2014 DID list, it proved to be necessary to adjust the upper limit of CDVchronic. Without this adjustment, as much as 3-4 times toxic compounds would be permitted in the products. In version 5.2 therefore the upper limit of CDVchronic was modified from 2500 to 1000. The level in the license data for CDVacute was nearly not affected and therefore not modified.

CDV limit in version 5 is based on a dosage of 0.60 gram/litre in-use solution and higher dosage for products that currently have a recommended dosage of >0.60 gram/litre. See also Section 1.3. The CDV limit has been tightened somewhat but is based on licence data available to Nordic Ecolabelling. The CDV limit in the draft criteria (based on a fixed dosage of 1.0 g/l) has been converted to the new specified dosage. The limit value influences products in the same way as the draft criteria.

Requirement:

The critical dilution volume (CDV) shall be calculated for all chemicals contained in the hand dishwashing agent. CDV is a theoretical value that takes into regard each substance's toxicity and biodegradability.

The products CDV is calculated at a dose of 0.60 g/l in-use solution if the specified dosage is ≤ 0,60 g/l. If the recommended dosage is greater than 0.60 g/l, the recommended dosage shall be used for calculations.

The product's CDV must not exceed the following limit values for $CDV_{chronic}$ or CDV_{acute}.

$CDV_{chronic} \leq 1000$** litres

$CDV_{acute} \leq 2500$ litres

CDV is calculated according to the following formula. CDV shall be calculated for all substances in each ingredient and for all constituent ingredients in the product.

$CDV_{chronic} = \sum CDV_i = \sum (dose_i \times DF_i \times 1000 / TF_{chronic})$, where

or

$CDV_{acute} = \sum CDV_i = \sum (dose_i \times DF_i \times 1000 / TF_{acute})$,

Where

$dose_i$ = the quantity of each substance in g/litre in-use solution*

DF_i = degradation factor of substance i

$TF_{chronic}$ = chronic toxicity factor

$TF_{chronic}$ = acute toxicity factor

**The dosage is set at 0.60 g/l if the recommended dosage specified on the packaging is ≤0.60 g/l. If the recommended dosage is >0.605 g/l, the recommended dosage is used.*

***Applicable when changes in recipe of products licensed according to version 5.0 or 5.1, and for products when applying for license.*

Documentation shall primarily refer to the DID list of 2014 or later. For substances not covered by this list, other documentation such as test reports and literature references may be submitted. For more information, refer to Section B of the DID list.

✉ Calculation of CDV_{acute} or $CDV_{chronic}$ for the hand dishwashing agent demonstrating compliance with the requirement. Documentation for each substance that refers to the DID list dated 2014 or later. Part B shall be used for substances not found on the DID list.

1.5 Packaging

R14 Plastics

PVC is sometimes used in labels and packaging. PVC is prohibited from use in ecolabelled products since it has adverse environmental effects in the waste disposal phase and contains substances with undesirable health effects. When incinerated waste includes PVC, the level of chlorine increases. Chlorine is one condition for the formation of very toxic dioxins in the flue gasses. There are several other sources of chlorine other than PVC. The incineration of PVC does not necessarily increase the quantity of dioxins since chlorine is not the limiting factor for the formation of dioxins at incinerations plants (Hjelmar, 2002), (Erichsen & Hauschild, 2000).

The additional PVC will however increase the quantity of acidic flue gasses and increase the need for purification, thus increasing the waste formed by flue gas purification. The combustion of 1 kg PVC can create up to 1.7 kg salts from flue gas purification (Hjelmar, 2002). This figure is however not particularly relevant in this context since the use of cadmium in PVC is no longer permitted (Hjelmar, 2002) and due to the requirements we place on products produced following this ban. Lead compounds are often used as stabilisers in PVC (MST, 2000) and this can also be considered a potential problem for heath and the environment.

In Denmark, waste contain PVC must be sorted into a separate fraction.

Requirement text:

Plastic packaging and labels containing PVC or plastic based on other types of chlorinated materials must not be used.

✉ Data sheet or declaration specifying the plastics that are used. Appendix 3 or equivalent declaration may be used.

R15 DIN labelling

Plastic materials shall be labelled according to DIN 6120 part 2, ISO 11469:2000 or equivalent to facilitate sorting in connection with the recycling of plastics at the end of the product's service life. In addition, this labelling can demonstrate that the product does not contain PVC. This sends a message tot he customer and provides Nordic Ecolabelling increased control.

Requirement text:

To facilitate identification for recycling, plastic bottles that are used as packaging must be marked in accordance with DIN 6120, section 2, ISO 11469:2000 or equivalent standard. Stoppers, bottle caps and pumps are exempt from this requirement.

✉ Documentation of primary packaging demonstrating that marking complies with DIN 6120 or equivalent marking regulations. Images of the product marking or data sheet specifying the marking. Marking may also be specified on the submitted label.

R16 Weight-utility ratio (WUR)

Wight-utility ratio (WUR) is a parameter that aims to reduce the amount of packaging and promote the use of recycled materials. WUR is a measure of the amount of packaging that is used to deliver a quantity of the product with a predetermined benefit. This limitation promotes concentrated products by relating the quantity of packaging to the number of doses.

Nordic Ecolabelling has chosen to not to set requirements related to the primary packaging for two reasons: Controllability over transport packaging is limited and it penalises producers with small production volumes unnecessarily hard.

Primary packaging includes the weight of the packaging that contains the hand dishwashing detergent. This includes the label, bottle top/cap and possible dispenser.

The requirement limit is based on Nordic Ecolabelling's experience of licensing both professional and consumer products.

Nordic Ecolabelling aims for the WUR requirement to disqualify extravagant bottle designs without prohibiting small bottles for concentrated products.

To clarify what is meant by recycled material in packaging, the following text has been added:

> *Packaging is considered postconsumer recycled if the raw materials are recovered from distribution and/or following use by consumers. If the raw material is industrial waste from the material or packaging manufacturer's own production, the material is not considered postconsumer recycled.*

This means it is insufficient merely to reuse spillage and waste from plastic production. To count as recycled, the plastic raw material must be derived from post-consumer areas or similar.

In previous criteria versions, plastic has been given the value t=20 in the WUR calculation. In this version, the figure has been changed in the same way as the EU Ecolabel, i.e. t=1 if there is documented evidence that the packaging is reused. A review of current licenses shows that most manufacturers have used a value t=1. The requirement is therefore not expected to influence licensed products to any great extent.

The following requirement is therefore proposed:

> Wight-to-benefit ratio (WUR) is a parameter that aims to reduce the amount of packaging and promote the use of recycled materials. WUR is a measure of the amount of packaging that is used to deliver a quantity of the product with a predetermined benefit. Note that the functional dose in the calculation is the highest specified dose for 1 litre of water based on the dosage specified on the packaging.
>
> The requirement regarding WUR is as follows:
>
> $$WUR = \Sigma [(W_i + N_i)/(D_i * t_i)] < 0.15$$
>
> W_i = Weight of the primary packaging component (i) in grams including cap, dispenser or similar.
>
> N_i = weight (g) of non-recycled (virgin) material in packaging component (i) in gram.
>
> If the proportion of recycled material in the packaging component is 0%, $N_i = W_i$.

Packaging is considered postconsumer recycled if the raw materials are recovered from distribution and/or following use by consumers. If the raw material is industrial waste from the material or packaging manufacturer's own production, the material is not considered postconsumer recycled.

Di = Number of functional doses in the primary packaging component (i).

ti = Reuse factor. I.e. the number of times that the packaging component (i) is reused. t = 1 if the packaging is not reused for the same function (disposable packaging).

t > 1 may only be used if supported by documentation demonstrating that the packaging is reused for the same function.

☒ Calculation of the weight-to-benefit ratio (WUR) and documentation regarding reuse of the packaging, if applicable.

☒ Declaration from the packaging manufacture regarding the content of recycled materials (if recycled materials are used).

R17 Take-back system

The take back of packaging is an important phase in the material cycle. Some Nordic countries have well-managed recycling systems for used packaging. Nordic Ecolabelling wishes to support such to increase the recycling of packaging.

The following requirement is therefore proposed:

Relevant national regulations, legislation and/or agreements within the sector regarding the recycling systems for products and packaging shall be met in the Nordic countries in which the company markets its hand dishwashing detergent.

☒ Copies of agreements from the applicant demonstrating adherence to existing recycling/take-back agreements. Appendix 3 or equivalent declaration may be used.

1.6 User information and instructions on sustainable use

R18 Dosage and user instructions

The dosage of hand dishwasher detergent is an important parameter to prevent over-dosing. Overdosing increases impact through the unnecessary emission of chemicals. See also "Consumer habits" under Section 1.3.

Previously, Nordic Ecolabelling required that dosage should be specified in ml and some other measure such as teaspoons. In the proposed requirement, dosage shall be specified in millilitres per y litres of water and/or, for consumer products, in teaspoons. The alternative of specifying the dosage in teaspoons is to emphasise for the consumer that only very small quantities of detergent are required for the desired cleaning performance.

The dosage of professional products can be specified in x millilitres per y litres water or number of pump strokes (or similar) per y litres of water, if the product is sold with a dispenser.

Another important parameter related to hand dishwashing is the heating of the washing water. Washing up in a bowl or sink consumes considerably less warm water than washing and rinsing under running warm water (see also Section 1.2). However, since the small labels on hand dishwashing detergent bottles do not provide space for extra text and such

directions, Nordic Ecolabelling has decided not to stipulate a requirement on such user instructions.

Following the review, the following text has been added to the requirement:

> Products containing phosphates must display the following or equivalent text on the label *in the appropriate language for the country of sale*:
>
> ”Innehåller fosfat och bör därför inte användas utanför det kommunala avloppsnätet”. (Contains phosphates. Should only be used if connected to the municipal waste water system.)
>
> *“Note the national legislations concerning phosphorous in the Nordic countries. In Norway phosphorus is regulated in «Forskrift om begrensning i bruk av helse- og miljøfarlige kjemikalier og andre produkter (produktforskriften)», §2- 12 and § 2-14.*

This addition has been made since hand dishwashing detergent is a product group that is used in many different areas, including such that are not served by a municipal waste water system (e.g. camping sights and holiday homes). Phosphates are uncommon in hand dishwashing detergent. But this text has been added to provide the consumer with bettering information regarding products that do contain phosphates.

The requirement should therefore be designed as follows:

> The product’s primary packaging must provide information on the recommended dosage.
>
> The recommended dosage for normal soiling shall be clearly and plainly stated on the label/packaging.
>
> Regarding consumer products, the dosage shall be given as X millilitres per Y litres of water, or as Z teaspoons* per Y litres of water.
>
> Regarding products for professional use, the dosage can be stated as X millilitre, Y pumps or some other standardised measure per Z litres of water.
>
> ** 1 teaspoon = 5 ml*
>
> Products containing phosphates must display the following or equivalent text on the label in the appropriate language for the country of sale:
>
> ”Innehåller fosfat och bör därför inte användas utanför det kommunala avloppsnätet”. (Contains phosphates. Should only be used if connected to the municipal waste water system.)
>
> *“Note the national legislations concerning phosphorous in the Nordic countries. In Norway phosphorus is regulated in «Forskrift om begrensning i bruk av helse- og miljøfarlige kjemikalier og andre produkter (produktforskriften)», §2- 12 and § 2-14.*

✉ Label, draft of the label or copy of the information (regarding dosage and, if applicable, additional information on phosphates) on the primary packaging. For professional products, a product data sheet is also required.

2 Performance

In this version of the criteria, Nordic Ecolabelling has investigated other performance tests beyond the framework used in previous versions.

The draft criteria included two proposed tests; the framework from version 4 of Nordic Ecolabelling's criteria and the IKW test with adaptations made for the EU Ecolabel. The

purpose was to collect pros and cons with the two tests during the review period to determine which test works best. Most reviewers supported the IKW test with some amendments. But there was also criticism against the IKW test.

The first version of the Nordic Ecolabelling criteria for dishwasher detergent included a performance test that was similar to the IKW test. This was later replaced as it lacked the documentation of cleanliness.

Over the years, it has been demonstrated that there are many ways to evaluate cleanliness. Nordic Ecolabelling has chosen to stay with the framework test but with a couple of changes.

R19 Performance test

Performance is an important parameter to demonstrate that the product has the cleaning performance desired by the consumer. Performance shall be satisfactory at the recommended dosage. Testing shall be conducted at the lowest recommended dosage specified on the packaging. The fixed dosage used for CDV and ecotoxicity tests (0.6 g/l) is not used here since a recommended dosage is stated on the packaging and consumers must be able to expect that the product works at that dosage.

The test shall be performed by a laboratory. The manufacturer's own laboratory may be used for the performance test if it complies with the criteria regarding test laboratories in Appendix 2.

In this version of the criteria, Nordic Ecolabelling has investigated other performance tests beyond the framework used in previous versions.

The draft criteria included two proposed tests; the framework from version 4 of Nordic Ecolabelling's criteria and the IKW test with adaptations made for the EU Ecolabel. The purpose was to collect pros and cons with the two test during the review period to determine which test works best. The majority of comments were in support of the IKW test but with changes other than those proposed in the EU Ecolabel criteria (see below). There was also some criticism of the test, such as from independent test laboratories that perform such tests. Nordic Ecolabelling has chosen to retain the framework test from the previous version but has made clarifications and additions regarding method and reporting to ensure whether testing demonstrates that the product is equivalent to or better than the reference product. The framework test in the criteria takes the most relevant parameters from the IKW test with continued openings to optimise the test. The IKW test can be considered to have advantages since it is a more standardised test.

However it has drawbacks regarding Nordic conditions:
Water in the Nordic region is generally soft, while the IKW test prescribes hard water. Nordic Ecolabelling wishes that testing continues to be conducted with a water hardness that is relevant to the Nordic region. I.e. a standardised test using high water hardness is undesirable.

The IKW test instructions stipulate which fats, etc., shall be used for soiling. The two recipes for soil comprise 12 components, which is considered excessive by several parties that Nordic Ecolabelling has consulted. The Nordic Ecolabelling framework test now clearly states that the manufacturer must specify the mixture of soil that is used in the test

and that this mixture must contain carbohydrates and protein (such as flour and egg). The test also stipulates that the soil must primarily comprise animal and vegetable fats. Nordic Ecolabelling has also received information that using the IKW test it is difficult to demonstrate that an increased dosage of the product improves performance. The Nordic Ecolabelling test using pure water is therefore included to evaluate the difference between the inclusion and absence of hand dishwashing detergent.

Nordic Ecolabelling has therefore chosen to retain and improve the existing test method. Amendments include:
The test procedure in Appendix 5 now states that all mechanical processing shall be performed in a predetermined and equivalent manner for all test repetitions. A suggested method is also included: 20 circular movements on the front and 6 circular movement on the back of each plate. This proposal is taken from the IKW test and has been included to increase the repeatability of the test.

The requirement on cleaning capacity has been clarified as to the method of evaluation. As for the IKW test, it is proposed that the test should continue until all foam has disappeared. The Nordic Ecolabelling test also includes the parameter cleanliness, which is not included in the IKW test. This is included to ensure that the plates that are washed up are also clean, i.e. that the detergent is effective in removing soiling.

Cleanliness and cleaning capacity are also defined. The appendix includes the following on cleaning capacity:
The test must be capable of generating results that provide a measure of capacity, i.e. how long the dish-washing detergent lasts. The test is then stopped at predetermined conditions. The recommended conditions are when there is no more foam but other indicators may be used. If a different indicator than "no foam" is chosen, this must be described and justified. The number of plates is determined when the predetermined conditions are reached. Either the total number of plates or the number of clean plates can be counted.

This means that to determine cleaning capacity, an end point for the test must be determined in advance. As for the IKW test, it is recommended that no more foam is used as the ending point. Testing of cleaning capacity indicates for how long the hand dishwashing detergent is effective. This can be evaluated by counting the number of plates that could be washed up before the foam disappears. This can also be evaluated by counting the number of plates that could be cleaned before the foam disappears.

The other parameter that shall be evaluated by the test is cleanliness. The appendix includes the following text:
The test must be capable of generating results that provide a measure of cleaning ability. This may be through visual, optical, gravimetric or some other relevant method of analysis. The method of analysis and units of measure shall be determined in advance and specified. Visual inspection can be performed using a rating scale.
The following rating scale can be used. Evaluation shall be performed by two people using the same lighting conditions (preferably a 1000-1500 lux lamp). Both the front and reverse of the plate shall be evaluated together:
5 = Completely clean
4= 1-10 small fat droplets/spots with a maximum combined surface area of 4 mm^2
3= More than 1-10 small fat droplets/spots with a combined surface area of 4-50 mm^2
2 = Fatty coating of 50-200 mm^2
1 = Fatty coating of more than 200 mm^2

I.e. different methods can be used to evaluate cleanliness (visual, gravemetric, optical, etc.). The criteria now include a proposed rating scale for visual examination.

The report shall specify how both cleaning capacity and cleanliness are evaluated with the associated test data and rating scales.

Appendix 5 regarding the performance test has been updated to clarify the required report format for approval of the test. The report must now include the measured start and finish temperature of the washing-up water, the results of the water test and documentation of the weighing of soiling before and after dishwashing.

To pass the test requires that the test product equals or betters the results of the reference product in at least 80% of test repetitions. This can also be demonstrated through a one-sided 95% confidence interval.

In the test, the product is compared to a reference product that is one of the 3-4 market leading products in a Nordic country of the Nordic region. A comparison with a market-leading product demonstrates that the product delivers the desired performance. A list of market-leading products in each country is available from Nordic Ecolabelling. Nordic Ecolabelling sees this more stringent requirement of comparison with market-leading products as a way to assure that the performance of Nordic Swan Ecolabelled products equals that demanded by the market. If a product is sold throughout the Nordic region or in more than one country, it is sufficient that performance is tested against one leading product within the country of application.

In previous versions of the criteria for hand dishwashing detergent, it has also been possible to test a product against the reference formula specified in the EU Ecolabel and IKW test. This possibility has been omitted in this version of the criteria since the reference formula is designed for hard water (14°dH), which is not relevant for most cases in the Nordic Region. Nordic Ecolabelling also wishes to maintain the level of performance of today's ecolabelled products and thus chooses to continue to compare products to the market leaders.

During testing, the dosage recommended on the packaging shall be used. This applies to both the reference and the test product. If the reference product lacks dosage recommendations, the same dosage as the test product shall be used.

These criteria clarify that a professional product must be compared with another professional product. This requirement has been added since professional requirements differ in certain respects, such as the ability to remove burnt on food or clean very greasy dishes. Nordic Ecolabelling therefore considers that it is relevant that products are compared to equivalent products on the market.

The requirement should therefore be designed as follows:

> Performance is a measure of how well the product cleans (ability to remove soiling) and cleaning capacity (how long the product lasts). Performance is relative to a reference product.
>
> The product must be as good as or better than the reference product. This means that the test product is considered to have fulfilled the performance requirements when positive results (equal or better than the reference product) are obtained in at least 80 %

of the test rounds (e.g. 4 out of 5). As an alternative, the applicant may use statistical methods and demonstrate with a one-sided 95 % confidence range that the test product is as good as or better than the reference product in at least 80% of test rounds.

The performance test shall be conducted by a laboratory (see Appendix 2 for test laboratory requirements) within the framework specified by Appendix 5a. The test results shall be documented in accordance with Appendix 5a. The test shall be performed by a laboratory complying with Appendix 2.

- The reference product is tested at the lowest recommended dosage that is stated on the packaging. If no dosage instructions are provided, the same dosage is used as for the test product.
- The test product is tested at the lowest recommended dosage.
- The reference product is defined as one of the well-established (3-4 market-leading) hand dishwashing detergents in a Nordic country or the Nordic region. *A list of reference products is available from Nordic Ecolabelling.*
- The reference product shall be different from the product to be ecolabelled. The reference product must come from a different manufacturer than that of the product to be ecolabelled.
- The reference product must be purchased in connection with the performance of the test. A product designed for the professional market shall be tested against another professional product, and a consumer product against another consumer product. If the product is marketed for both professional and consumer use it shall be tested against a professional product.

✉ Test report in accordance with Appendix 5a demonstrating that product performance is equivalent or better than the reference product.

✉ Documentation regarding the test laboratory in accordance with Appendix 2.

3 Quality and regulatory requirements

To ensure that the product fulfils Nordic Ecolabelling criteria throughout the validity period of the licence, Nordic Ecolabelling stipulates requirements on the quality procedures of the licensee and possible suppliers. To ensure that the Nordic Swan Ecolabel is only awarded to operations that observe pertinent legislation, it is also required that the licensee is not in dispute with the authorities.

R20 Licence administrators

Applicants must provide a clear description (such as an organisational chart) that shows who is responsible for the observance of Nordic Ecolabelling requirements and who is the contact person with Nordic Ecolabelling. This is to ensure that Nordic Ecolabelling is informed of changes and problems.

Requirement text:

The company shall appoint a contact person responsible for ensuring the fulfilment of Nordic Ecolabelling's requirements.

✉ A chart of the company's organizational structure detailing the responsible contacts.

R21 Documentation

The licence applicant must save a copy of the submitted documentation for reference and so that the documentation is available to personnel during the licence period.

This documentation must be made available to Nordic Ecolabelling on inspection visits.

Requirement text:

> The licensee must be able to present a copy of the application and factual and calculation data supporting the documents submitted on application (including test reports, documents from suppliers and suchlike).
>
> On-site inspection.

R22 Quality of the hand dishwashing detergent

The quality of hand dishwashing detergent is important. The licensee must have procedures in place that assure that Nordic Swan Ecolabelled hand dishwashing detergent maintains the quality it had at the time of application throughout the licence period. Procedures controlling how claims are registered and handled are important tools in maintaining the quality of the product.

Requirement text:

> The licensee must guarantee the quality during production of the Nordic Swan Ecolabelled hand dishwashing detergent for the validity period of the licence.
>
> ✉ Procedures for collating and, where necessary, dealing with claims and complaints regarding the quality of the Nordic Swan Ecolabelled hand dishwashing detergent.

R23 Planned changed and unplanned non-conformities

A Nordic Swan Ecolabelled hand dishwashing detergent is ecolabelled provided that the formulation is approved by Nordic Ecolabelling. All changes must therefore be reviewed and evaluated by Nordic Ecolabelling before they are introduced in the product. The licensee must have procedures in place that ensure that Nordic Ecolabelling is informed of planned changes that have a bearing on the requirements.

Unplanned nonconformities that influence the Nordic Swan Ecolabelled product must be reported to Nordic Ecolabelling. Procedures to ensure this must be implemented at the production plant.

Requirement text:

> Written notice must be given to Nordic Ecolabelling of planned changes and unforeseen nonconformities that have a bearing on Nordic Ecolabelling's requirements.
>
> ✉ Procedures detailing how planned changes and unplanned non-conformities are handled and how Nordic Ecolabelling will be informed.

R24 Traceability

Procedures regarding traceability are important when processing claims related to the Nordic Swan Ecolabelled product. It shall be possible to trace from the finished product back to the constituent ingredients. In case of production problems, a traceability system

shall ensure that all raw materials in the Nordic Swan Ecolabelled product are the same as at the time of application and included in the correct quantities.

Requirement text:

The licensee must have a traceability system for the production of the Nordic Swan Ecolabelled product.

✉ Description of/procedures for the fulfilment of the requirement.

R25 Laws and regulations

This requirement ensures that the holder of an ecolabelling licence is responsible for following safety, working environment and labour legislation as well as the terms and concessions applying at the production facility during production of the ecolabelled product.

These requirements are included to ensure that the requirements of the ecolabelling criteria are upheld during the period of the licence.

Requirement text:

The licensee must guarantee adherence to safety regulations, working environment legislation, environmental legislation and conditions/concessions specific to the operations at all sites where the Nordic Swan Ecolabelled hand dishwashing detergent is manufactured.

✉ Signed application form.

4 Marketing

The Nordic Swan Ecolabel is a very well-known and well-reputed trademark in the Nordic region. A Nordic Swan Ecolabelled hand dishwashing detergent may be marketed using the Nordic Swan Ecolabel as long as the associated licence is valid.

The label must be positioned so that there is no doubt as to what the label refers to and so that it is clear that the hand dishwashing detergent is ecolabelled.
More information on marketing can be found in "Regulations for Nordic Ecolabelling of products" of 22 June 2011 or later version.

The Board of Directors decided on 17 November 2014 to remove R27 Marketing from the criteria document.

The following requirements are therefore proposed:

R26 Product characteristics

The product may not be marketed for uses other than those detailed by the criteria document. See the sections “What can carry the Nordic Swan Ecolabel?”.

✉ Label, draft of the label or copy of the information on the primary packaging. For professional products, a product data sheet is also required.

Appendices
The appendices have been changed since the previous version. The appendix regarding fragrances is now incorporated in Appendix 4 on primary products. The appearance of the appendices has changed somewhat due to new chemical classifications and since the order of requirements has been changed.

Appendix 5 describing the cleaning performance test has been updated. For details, see the comments regarding requirement 19 "Performance test".

5 Other points of discussion

A point score system has been discussed. However, the number of parameters suitable for such is few and Nordic Ecolabelling has therefore chosen not to introduce a point score system.

During this revision, a requirement on dispensers has been discussed. It was concluded that since consumers use hand dishwashing detergents in many different ways, it is very difficult to design a dispenser system that works in a wide variety of cases. Nordic Ecolabelling does not stipulate requirements on dispensing equipment for all products.

6 Changes following review

Following review, several changes and adjustments have been made based on the comments that were received.

Table 6.1 Changes following review

Requirement	Requirement text in draft	Requirement following review	Comment
4	The product must not contain more than 0.10% by weight of substances that are classified as H334/R42 and/or H317/R43 according to Regulation (EC) No 1272/2008 or Directive 67/548/EEC.	The product must not contain ≥0.10% by weight per substance of substances that are classified as H334/R42 and/or H317/R43 according to Regulation (EC) No 1272/2008 or Directive 67/548/EEC.	Clarification that the limit value is ≥0.10% and that this applies per substance.
5a	The constituent substances that are added to the product as fragrances must be manufactured and/or handled in accordance with the guidelines of the International Fragrance Association (IFRA). The manufacturer must follow the requirements stipulated by IFRA standards with respect to prohibited use, limited use and material purity.	The use of fragrances shall follow IFRA guidelines (International Fragrance Association).	The requirement text regarding IFRA guidelines has been simplified.
6		*If a product is sold on both professional and consumer markets, it is considered a professional product if more than 80% of sales are to the professional market.*	Clarification that products are considered professional if ≥ 80% of sales are to the professional market.

7	Substances that have been evaluated in the EU to be PBT (Persistent, bioaccumulable and toxic) or vPvB (very persistent and very bioaccumulable) (see http://ecb.jrc.ec.europa.eu/esis/index.php?PGM=pbt) -Substances that are considered substances of very high concern according to REACH, article 59, Annex XIV. (http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp)	-Substances that have been evaluated in the EU to be PBT (Persistent, bioaccumulable and toxic) or vPvB (very persistent and very bioaccumulable) in accordance with Annex XIII of REACH. -Substances of very high concern listed on the candidate list http://echa.europa.eu/chem_data/candidate_list_en.asp	Links updated and clarification of reference to the candidate list.
11, 13	Fixed dosage for calculations of 1 g/l in-use solution	Fixed dosage for calculations of 0.60 g/l for products with a recommended dosage of ≤0.60 g/l Calculation at the recommended dosage for products with a recommended dosage of >0.60 g/l in-use solution	Change from a dosage of 1.0 g/l to 0.6 g/l for products with low dose, and the addition that products with a recommended dosage >0.60 g/l shall be calculated at the recommended dosage.
11	Requirement: FV = 100 *C R50/53 + 10* C R51/53 + C R52/53 = 0.040 gram / litre in-use solution or Requirement: FV = 100 *C H410 + 10* C H411 + C H412 = 0.040 gram / litre in-use solution	Requirement: FV = 100 *C R50/53 + 10* C R51/53 + C R52/53 = 0.030 gram / litre in-use solution or Requirement: FV = 100 *C H410 + 10* C H411 + C H412 = 0.030 gram / litre in-use solution	Limit value changed to 0.030 g/l since the fixed dosage has been lowered since the circulation of the draft criteria.
12	All surfactants must be readily biodegradable (aerobically) in accordance with test method 301 A-F in "OECD Guidelines for the Testing of Chemicals" or other equivalent test method. All surfactants must be anaerobically biodegradable. This means a minimum of 60% degradability under anaerobic conditions in accordance with ISO 11734, ECETOC, No. 28 (June 1988), or other equivalent methods. Documentation demonstrating that all surfactants are aerobically and anaerobically degradable in accordance with the criteria. Documentation shall primarily refer to the DID list of 2007 or later. Reference to the DID list: If the DID list does not contain relevant data, these can be taken from the material safety data sheets provided that the data are reliable and that test methods comply with Appendix 2. In the same way, it is also permitted to refer to analogous arguments as long as these are carried out by a competent third party. It is also permitted to refer to relevant literature that has been scientifically evaluated.	All surfactants must be readily aerobically biodegradable. All surfactants must be anaerobically biodegradable Reference to the DID list dated 2007 or later. If the DID list does not contain relevant data, data can be taken from the material safety data sheets provided that the data are reliable and that test methods comply with Appendix 2. Section B of the DID list shows how the various factors are calculated. It is also permitted to refer to analogous arguments as long as these are carried out by a competent third party. It is also permitted to refer to relevant literature that has been scientifically evaluated.	The requirement on surfactants has been reformulated to simplify application. The test methods are described in Appendix 2 and section B of the DID list and do not need to be repeated in the requirement text.
13	CDVchronic ≤ 4000 *The dosage is set as 1 gram per	CDVchronic ≤ 2500 or	New CDV limit values introduced in

	litre unless the following information is provided: - Documentation demonstrating that the product is used at lower concentrations (e.g. consumer survey, fixed dispenser or similar). and - Performance test (fulfilling R19) at this lower dosage.	CDVacute ≤ 2500 *The dosage is set at 0.60 g/l if the recommended dosage specified on the packaging is ≤0.60 g/l. If the recommended dosage is >0.60 g/l, the recommended dosage is used.	conjunction with a lower fixed dosage. Addition regarding CDVacute.
18	Regarding consumer products, the dosage shall be given as X millilitres per Y litres of water, or as Z teaspoons per Y litres of water. Regarding products for professional use, the dosage can be stated as X millilitre, Y pumps or some other standardised measure per Z litres of water. The label/packaging must also state that the washing up should not be rinsed under running warm water, for example "Avoid rinsing dishes under running warm water".	Regarding consumer products, the dosage shall be given as X millilitres per Y litres of water, or as Z teaspoons* per Y litres of water. Regarding products for professional use, the dosage can be stated as X millilitre, Y pumps or some other standardised measure per Z litres of water. * 1 teaspoon = 5 ml Products containing phosphates must display the following or equivalent text on the label: "Innehåller fosfat och bör därför inte användas utanför det kommunala avloppsnätet". (Contains phosphates. Should only be used if connected to the municipal waste water system.) Note that there is a Norwegian requirement of max 0.2% phosphate in products.	Text stating that 1 tsp = 5 ml has been added. The text regarding not rinsing in cold water has been removed. New text regarding the requirement of information on products that contain phosphates. A comment on Norwegian legislation regarding phosphates has been added.
20	Performance is a measure of how well the product cleans (ability to remove soiling) and cleaning capacity (total quantity of soiling that a dosage is able to remove). Performance is relative to a reference product. The reference product is defined as one of the well-established (3-4 market-leading) hand dishwashing detergents in a Nordic country or the Nordic region. This means that the reference product must, in weight or volume terms, be among the 3-4 biggest sellers on the said markets. The choice of reference product shall be backed by a market analysis, sales figures or similar.	Performance is a measure of how well the product cleans (ability to remove soiling) and cleaning capacity (how long the product lasts). Performance is relative to a reference product. The product must match or better the reference product. This means that the test product is considered to have fulfilled the performance requirements when positive results (equal or better than the reference product) are obtained in at least 80 % of the test rounds (e.g. 4 out of 5). As an alternative, the applicant may use statistical methods and demonstrate with a one-sided 95 % confidence range that the test product is as good as or better than the reference product in at least 80% of test rounds. The reference product is defined as one of the well-established (3-4 market-leading) hand dishwashing detergents in a Nordic	The draft criteria contained two proposed performance tests. Based on the comments that were submitted, Nordic Ecolabelling has chosen to retain the Nordic Ecolabelling test, though with some changes and clarifications. The requirement now includes the text that 80% of tests must show that the product is equal or better than the reference. This text was previously only found in the appendix. To help applicants, Nordic Ecolabelling has compiled a list of possible reference products. The documentation requirement on laboratories is included in the requirement.

		country or the Nordic region. A list of reference products is available from Nordic Ecolabelling. Documentation regarding the test laboratory in accordance with Appendix 2.	This was previously only found in the appendix.
Appen-dix 1	The following stipulations apply regarding ecotoxic effects, challenge tests and performance tests. The analysis laboratory must be competent and impartial as specified below. The analysis laboratory used shall fulfil the general requirements of standard EN ISO 17025 or have official GLP status. The applicant's analysis laboratory/test procedure may be approved for analysis and testing if: -the analyses and tests are monitored by the authorities, or -if the manufacturer has a quality management system encompassing sampling and analysis and has been certified to ISO 9001 or ISO 9002.	1A Requirements on the analysis laboratory. The following stipulations apply regarding ecotoxic effects and challenge tests. The analysis laboratory must be competent and impartial as specified below. The analysis laboratory used shall fulfil the general requirements of standard EN ISO 17025 or have official GLP status. 1B Requirements on the analysis laboratory for performance testing. The analysis laboratory used shall fulfil the general requirements of standard EN ISO 17025 or have official GLP status. The applicant's analysis laboratory/test procedure may be approved for analysis and testing if: The manufacturer has a quality management system encompassing sampling and analysis and has been certified to ISO 9000. The test method for performance test is part of the quality system. Nordic Ecolabelling shall have access to all raw data.	Appendix 1 has been split up to clarify what applies to the per-formance test and what applies to other tests. The manufacturer's own laboratory may be used for the performance test.
Appendi x 3, R17	Grønne Punkt	Grønt Punkt	Amendment of incorrect Grønne Punkt till Grønt Punkt.
Appendi x 5	Appendix 5A+5B	Appendix 5	The draft criteria con-tained two proposed performance tests. Following review, the IKW test was selected. Appendix 5A and 5B have been replaced by a new Appendix 5.

7 Changes compared to previous versions

The most significant changes since version 4 are summaries in Table 3. Further comments can be found in Section 4.

Table 7.1. Summary of major changes from version 4 to 5.

Requirement	Version 4	Version 5
Product group definition		Products are considered professional if more than 80% of sales are to the professional market.
Classification	Dangerous Substances Directive 67/548/EEC	Dangerous Substances Directive 67/548/EEC and CLP Regulation 1272/2008
Fragrances	Fragrances on 26-list limited to max 100 ppm	Substances on 26-list and other fragrances classified as R42 (H334) and/or R43 (H317).
Prohibited substances		APD, substances of very high concern and potential endocrine disrupters have been added
Preservatives	"The content of preservatives in the product must not exceed the maximum permitted concentration in EU Directive 76/768/EEC on cosmetic products with revisions and amendments."	"The concentration of preservatives shall be optimised to the volume of the product. A challenge test or equivalent shall be used to demonstrate this. "
CDV, dosage	Recommended dosage, CDVacute < 4200 litres CDVchronic < 5300 litres	0.60 g/l if dosage ≤0.60 g/l. If dosage >0.60 g/l, the recommended dosage shall be used. CDVchronic ≤ 2500 litres CDVacute ≤ 2500 litres
Environmentally hazardous substances	R50/53 < 0.20mg/SRD* R51/53 < 0.20mg/SRD* R59 < 0.20mg/SRD* *SRD=standardised recommended dosage in gram/litre water	Weighted formula: FV = 100 *A R50/53 + 10* A R51/53 + A R52/53 = 0.030 gram / litre in-use solution
WBR	Return number t=20 for plastic packaging	t = 1 if the packaging is not reused for the same function (disposable packaging). t > 1 may only be used if supported by documentation demonstrating that the packaging is reused for the same function.
Dosage information	The size of the dosage must be quoted in: - whole millilitres for 5 litres of dishwashing water and - teaspoonfuls, capfuls or other standardised measuring units familiar to the consumer for 5 litres of dishwashing water.	Regarding consumer products, the dosage shall be given as X millilitres per Y litres of water, or as Z teaspoons per Y litres of water. Regarding products for professional use, the dosage can be stated as X millilitre, Y pumps or some other standardised measure per Z litres of water.
Performance test	Nordic Ecolabelling test	Updated Nordic Ecolabelling test with clarification and specification of method, reporting and soil.

Minor changes:
- Clarification of requirement texts (e.g. CDV, performance)
- Clarification of requirement with regard to professional products (R6) and associated text in product group definition.

8 New criteria

In the next revision, the performance test framework may be reviewed to mirror better common use patterns.

- The limit values for CDV and environmentally hazardous substances will be reviewed.
- The scope to introduce requirements on the production of ingredients in the form of a cross examination raw material production.
- Evaluation of the packaging components.

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Appendix 1 – MECO analysis

MECO is an acronym for materials, energy, chemicals and other (waste, transport, etc.). This analysis provides a brief summary of the impact of a product in different stages of its lifecycle.

Table 1. MECO analysis for hand dishwashing detergent

	Material phase	Production phase		Use phase	Waste phase	Transport phase
		Raw materials	Product			
Material	Extraction of surfactants and other ingredients from oil or plants	Manufacture of surfactants, packaging	Packaging	Fossil fuels for electricity and heat Overdosing	Packing incinerated/ recycled	Pallets, plastic outer packaging, cardboard
Energy	Primary production, energy for extraction of oil/vegetable oil and thus emissions of CO_2	Energy consumption and CO_2 emissions during the process	(Relatively low) Energy consumption and CO_2 emissions during the process	Temperature and quantity of washing water	Energy from incineration of packaging	Transport of ingredients and finished product
Chemicals		Classification, emissions from primary production, manufacture of plastics	Classification, emissions from manufacture of hand dishwashing detergent and plastics	Allergies (preservatives + fragrances), dosing/overdosing	Packaging and emission of washing water: Biodegradability and ecotoxicity	
Other	Working environment, ecosystem	Working environment		Allergies, working environment for professional users, performance		Ecodriving, logistics

Appendix 2

26-list

Amyl cinnamal	122-40-7	Amylcinnamyl alcohol	101-85-9
Anisyl alcohol	105-13-5	Benzyl alcohol	100-51-6
Benzyl benzoate	120-51-4	Benzyl cinnamate	103-41-3
Benzyl salicylate	118-58-1	Cinnamal	104-55-2
Cinnamyl alcohol	104-54-1	Citral	5392-40-5
Citronellol	106-22-9	Coumarin	91-64-5
d-Limonene	5989-27-5	Eugenol	97-53-0
Farnesol	4602-84-0	Gerianol	106-24-1
Hexyl cinnamaldehyde	101-86-0	Hydroxycitronellal	107-75-5
Hydroxy methylphentyl cyclohexenecarboxaldehyde (= Lyral)	31906-04-4	Isoeuenol	97-54-1
		Linalool	78-70-6
Methyl heptine carbonate	111-12-6	Gamma-methyl ionone	127-51-5
Evernia prunastri extract	90028-68-5	Evernia furfuracea extract	90028-67-4